

THE EFFECTIVENESS OF SANCTIONS REVISITED:  
AN EMPIRICAL ANALYSIS USING A BARGAINING AND ENFORCEMENT  
FRAMEWORK

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## ABSTRACT

BO RAM KWON: The Effectiveness of Economic Sanctions Revisited:  
An Empirical Analysis Using a Bargaining and Enforcement Framework  
(Under the direction of Navin A. Bapat)

While extant research on economic sanctions have identified various state-level variables that affect the effectiveness of economic sanctions, this study examines sanctions success by incorporating the role of the firm. I argue that imposing sanctions creates an enforcement dilemma for sanctioning states or senders. Namely, unlike the decision to impose sanctions, senders often have disincentives to enforce their sanctions policies on their firms, given that the restriction on economic transactions with targeted states may undermine their competitiveness. Following a strategic bargaining framework that consists of a sender, its firm and a target state, I propose that sanctions are more likely to succeed when the sender's firm retains a moderate share of the target's market relative to its foreign competitors. Also, I argue that due to strategic interaction, sanctions are more likely to be imposed when the conditions do not favor their success. The detailed case illustration and large-N quantitative analysis support these predictions and suggest that sanctions enforcement is indeed critical in determining sanctions success.

Dedicated to my parents and my husband, for their unwaning support.

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## Chapter 1. Introduction

In January 1995, President Clinton formally announced that the United States would unilaterally impose a comprehensive ban on all trade with and investments in Iran. The purpose of these economic measures was to dissuade Iran from developing its nuclear weapons program and supporting terrorist groups. The following year, the United States passed the Iran-Libya Sanctions Act (ILSA), which extended the restrictions to include firms of foreign states as well as U.S. owned firms. According to this law, foreign firms that did not comply with the U.S. sanctions would be prohibited from U.S. procurement and be denied the issuance of export licenses.

Ten years later, it was reported that the Houston-based oil company, Halliburton, was still engaged in business with Iran through its offshore subsidiaries.<sup>1</sup> The Treasury Department's Office of Foreign Assets Control (OFAC) had opened a case against Halliburton in January 2004 and in July a grand jury issued a subpoena against the firm. At issue was the role of Halliburton Products and Services Ltd, Halliburton's Dubai-based subsidiary, in trading with and providing services to Iran's oil industry. The representatives of Halliburton repeatedly denied breaching any U.S. laws that ban direct or indirect exports of U.S.-origin goods, services, or technology to Iran, invoking the fact that operations by foreign subsidiaries are permitted under federal law.

It is true that the U.S. sanctions law does not impose restrictions on the transactions of the *foreign* subsidiaries of their multinational firms. However, it applies strict conditions such that in

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<sup>1</sup> "Halliburton operates in Iran despite sanctions." 2005. NBC news, updated March 8.  
[http://www.msnbc.msn.com/id/7119752/ns/nightly\\_news\\_nbc\\_news\\_investigates/from/toolbar](http://www.msnbc.msn.com/id/7119752/ns/nightly_news_nbc_news_investigates/from/toolbar)

order to fully comply with the law, a U.S. multinational or any of its subsidiaries in the U.S. or abroad *must not engage in any decision making with regard to, or become involved in, business transactions with that foreign subsidiary and Iran.* During the investigation, evidence came to light that Halliburton's subsidiary was not so independent of its parent firm in Texas as claimed and had attempted to circumvent the sanctions. For instance, documents showed that in the late 1990s, the Iranians had maintained specific contacts at Halliburton and that it was unclear whether these contacts were indeed employed by the foreign subsidiary or a U.S. subsidiary, Kellogg-Brown-Root.<sup>2</sup> Also, there was evidence that despite sanctions, the National Iranian Oil Company had solicited numerous and rather outstanding bids from Halliburton.<sup>3</sup> It was not until 2007, more than three years after the federal investigations began in earnest, that Halliburton announced it had completed all contractual commitments and was pulling out of Iran because the business environment "is not conducive to our overall strategies and objectives."<sup>4</sup> Throughout the investigations, firm representatives reiterated that its services were legitimate.<sup>5</sup> According to U.S. Senator Frank R. Lautenberg, who had been on the committee investigating Halliburton's activities, "Halliburton had to be dragged kicking and screaming out of Iran...If Halliburton wasn't pressured by Congress, they would still be doing business in Iran."<sup>6</sup>

The illustration of U.S. sanctions on Iran indicates there can be discrepancies between the foreign policy concerns of a sanctioning government and the economic interests of its firms.

Economic sanctions, defined as a state's threat, actual suspension or termination of a mutually

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<sup>2</sup> "Dick Cheney, Iran and Halliburton: A Grand Jury Investigates Sanctions Violations." A Report by the Office of Senator Frank R. Lautenberg.  
[http://www.lautenberg.senate.gov/documents/foreign/REPORT\\_Halliburton\\_Iran.pdf](http://www.lautenberg.senate.gov/documents/foreign/REPORT_Halliburton_Iran.pdf).

<sup>3</sup> Swibe, Matthew. 2004. "Trading with the Enemy." *Forbes*, April 19.  
[http://www.forbes.com/global/2004/0419/041\\_print.html](http://www.forbes.com/global/2004/0419/041_print.html).

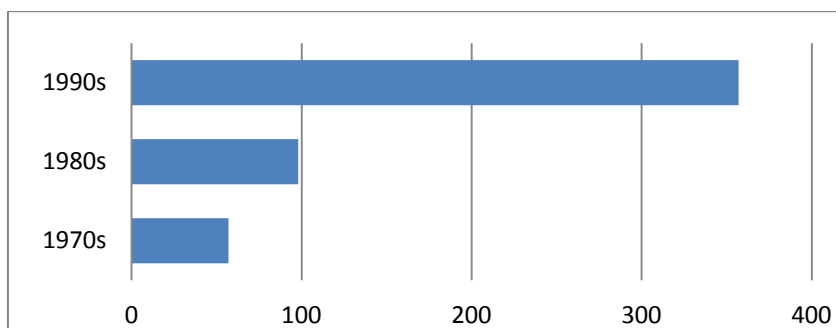
<sup>4</sup> NBC news, 2005.

<sup>5</sup> "Halliburton's prior business in Iran was clearly permissible under applicable laws and regulations," it said in a statement. Quote from Porretto, John. 2007. "Halliburton completes oil field projects in Iran." *Associated Press Worldstream*, April 9.

<sup>6</sup> *Ibid.*

profitable economic relationship with another state in order to induce compliance with a political demand, are a popular means of coercive bargaining. Traditionally, states have used both military force and economic sanctions as instruments of coercion. However, since economic sanctions can inflict significant costs on a target without generating as much human cost and public opinion backlash as the use of force, they have become a much-preferred policy to induce change in a target state's behavior. In recent years, economic coercion has been frequently used to punish authoritarian rulers for violating the human rights of citizens as well as to stabilize civil conflict situations. Moreover, the growing number of disputes regarding trade and investment otherwise known as “low politics” in addition to disputes over traditional security issues has increased the demand for non-military policy instruments. Figure 1 shows that the increase in the use of economic sanctions contrasts the downward trend in the occurrence of international military conflicts in the 1990s.

Figure 1.1: Number of Economic Sanctions Imposed



Source: The Threat and Imposition of Economic Sanctions Database (Morgan et al. 2009)

However, many sanctions scholars and policy makers contend that economic sanctions rarely accomplish their policy goals, particularly in coercing a target to change its behavior (Hufbauer, Schott and Elliott 1990; van Bergeijk 1994; Pape 1997, 1998). Some scholars have argued that sanctions further deteriorate human rights situations or lead to an increase in organized crime within the targeted state and in the surrounding region, perhaps creating a larger problem than the one it intended to resolve (Andreas 2005; Naylor 2008; Weiss et al. 1997; Wood 2008). According to

former UN Secretary-Generals Boutros Boutros-Ghali and Kofi Annan, sanctions are a “blunt instrument.” Yet, the frequency of economic sanctions imposed on violent and repressive states begs the question of why states still choose to implement sanctions policies when they appear to be so ineffective. An easy answer can be reached by assuming that policy makers repeatedly make incorrect calculations when they impose sanctions that lead them to fail. It may be possible for a few leaders to make mistakes some of the time, however it is unlikely that all leaders do so across the board.

One could also assume that sanctions policies are inherently defective such that they are bound to fail miserably in accomplishing the political goals of the sanctioning government. Indeed, it could be that sanctions policies are initially designed to have minimal impact on the target due to the influence of strong interest groups that prefer to continue transactions with the target or that the sanctions laws passed lack any real power once they manage to satisfy the demands of different groups. Although plausible, this line of thought remains largely unsatisfactory. State governments formulate foreign policies primarily to promote their broad national interests as well as to respond to their economic constituencies. The more the target resists pressures to change, the more urgent the issue will become to policy makers as the public is alerted, and thus the more likely that appropriate policies will be enacted.

Besides, the increase in the number of multilateral sanctions cases and international institutions such as the United Nations demonstrates that states are willing to pool and share their resources to give sanctions policies more “teeth.” During the 1990s the UN Security Council voted for economic sanctions twelve times, compared with the period from 1945 to 1990 when the UN only officially employed sanctions twice (Cortright and Lopez 2000). The multilateral sanctions recently imposed on Iran and North Korea demonstrate the urgency of coercing states to change their behavior and the realization that sanctions cannot be implemented successfully without the cooperation of their major trade partners. Moreover, the evolution of targeted or smart sanctions as a focal point for policy coordination in the last decade shows that the joint efforts of scholars and practitioners are making progress in the design of sanctions to improve the quality of the policy instrument. In recent years,

studies have identified that authoritarian regimes have incentives to provide private goods to its core elite rather than goods to the whole public, providing a stronger foundation for smart sanctions that seek to channel costs on the core elite (Allen 2008; Lektzian and Souva 2007). The failure of comprehensive sanctions in the 1990s and early attempts to impose sanctions targeting the leadership rather than the mass public was costly for sanctioning states and the UN, the Iraq case of 2003 being a representative example. However, these experiences created learning opportunities that drew more attention to the causal logic of how sanctions actually compel targets to acquiesce to sender demands. The improved ways in which sanctions are now being designed and implemented indicate that sanctions are useful, if not perfect, instruments of coercion.

Theoretically, the sanctions literature explains that the low success rate of unilateral sanctions may be due to the interests of pressure groups within the sanctioning country (Kaempfer and Lowenberg 1988), the lack of issue salience leading to selection effects (Drezner 2003; Lacy and Niou 2004; Morgan and Miers 1999; Smith 1996), the difficulty of the political goal (Kaplowitz 1998), the large number of issues involved (Miers and Morgan 2002), and third party assistance (Early 2009). However, few recognize the mechanism that for sanctions to succeed, the sanctioning state is dependent on its private actors, such as firms, to cooperate in imposing substantial costs on the target. In this study, I begin to provide a more satisfactory explanation for a seemingly low rate of sanctions success by incorporating two major points. First, I emphasize the role of firms in determining sanctions outcomes. The involvement of private actors in implementing sanctions policies is clearly recognized in public law. The following are examples of U.S. public law:

to impose sanctions on persons making certain investments directly and significantly contributing to the enhancement of the ability of Iran or Libya to develop its petroleum resources, and on persons exporting certain items that enhance Libya's weapons or aviation capabilities or enhance Libya's ability to develop its petroleum resources (Iran and Libya Sanctions Act of 1996, U.S. Public Law 104-172 [H.R. 3107]).

the term United States person means any United States citizen or alien admitted for permanent residence in the United States, and any corporation, partnership, or other organization organized under the laws of the United States (Cuban Democracy Act of 1992, Sec. 6010).

As shown, sanctions are not implemented directly between state governments but indirectly through private economic agents, particularly those of the sender, a component that has been overlooked in most sanctions analyses. Firms play an important role in determining the outcome of sanctions since the interests of sender governments and their firms do not perfectly align. On one hand, if the sender's firms willingly comply with sanctions laws and end their economic transactions with the target, the target will fully bear the costs and be more likely to give in to the sender's demands. On the other hand, if firms have strong economic incentives to continue to make a profit, as in the case of Halliburton in Iran, they may seek ways to evade sanctions, which mitigate the costs imposed on the target and undermine its impact.<sup>7</sup> Unless the sender government effectively deters its firms from evading the law, its ability to induce policy change in the target will be compromised.

Second, I emphasize that a sender's decision to utilize economic sanctions to coerce a target is more complicated than typically assumed. When economic transactions with the target are suspended or terminated due to sanctions, the sender also pays some costs. Not only does its revenue decrease, its economic presence in the target's market decreases in the long term, which may negatively affect its political influence over the target. Hence, sender governments face a tradeoff between their foreign policy interests and economic interests which factors into how they implement their sanctions policies. Although this may seem quite intuitive, the extant literature does not recognize its importance in light of enforcement. That is, if the expected economic costs of sanctions are too high, it is possible that senders may not fully enforce sanctions laws to maximize their political interests even when they have the ability to. This suggests that the resistance of Halliburton to immediately withdraw from Iran following sanctions was perhaps not entirely a demonstration of commercial greed, as it is often portrayed, but was rather encouraged by the fact that the U.S. government did not exhaust all of its energy to make sanctions work. If this is true, the generally low

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<sup>7</sup> Also see Baradaran et al. (2013). Conducting a randomized field experiment, the authors find that approximately one in seven international actors is willing to violate international law.

sanctions success rate could in part be attributed to the lack of a sender government's willingness or ability to enforce restrictions on its firms rather than the flaws of the policy instrument per se.

A closer investigation of U.S. sanctions on Iran provides a useful illustration of these points. First, from the firm's perspective, let us consider why firms sometimes refuse to obey its government's commands. While the media were busy reporting stories about Halliburton's rich political connections that allegedly won them oil contracts with forbidden countries, less amplified was the fact that the American firm was not the only oil company that showed up in Tehran despite sanctions. In fact, the Iranian market was brimming with foreign firms seeking opportunities to make a profit, making market competition high. Particularly, these firms threatened Halliburton's position in the Iranian market since they were not required to abide by U.S. sanctions. For Halliburton, complying with sanctions would entail giving up its market share to its competitors, which could only be undesirable for business in both the short and long term.

Of notable concern was the French oil and gas company, Total SA. The firm's involvement in the Iranian South Pars project began in 1997, when it signed a gas development contract along with Gazprom of Russia and Petronas of Indonesia that the press referred to as the largest-ever made with the Iranian government.<sup>8</sup> The U.S. warned that investing in Iran would signal a "massive step backwards" in transatlantic trade relations and attempted to deter further foreign investment.<sup>9</sup> Nevertheless, Total SA went ahead and made investments in Iran totaling more than US\$20 million in each of the years since the passage of the Iran Sanctions Act (ISA) until 2007. The contract prompted the Clinton administration to review the firm and its partners for possible breach of the Iran-Libya Sanctions Act (ILSA). However, Total had carefully calculated that the damage from sanctions would be minimal, since the wording of the ILSA only involved those companies in the Total group that were directly involved in the Iranian contract or which guaranteed its performance. These would only

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<sup>8</sup> Agence France Presse, December 13, 2001.

<sup>9</sup> Owen, David. 1997. "Total chief defies U.S. threats," Financial Times. September 30.

include Total South Pars, the entity participating in the joint venture, and Total SA, a holding company.<sup>10</sup> The company's formal statement was as follows:

To our knowledge, sanctions under the Iran Sanctions Act (ISA) have not been imposed on any non-U.S. oil and gas company, which has investments in Iran. However, Total cannot predict whether the U.S. government will take any action under the ISA with respect to its previous or possible future activities in Iran. It is possible, however, that the United States may determine that these or other activities constitute activity prohibited by the ISA and will subject Total to sanctions. Total does not believe that enforcement of the ISA against Total, including the imposition of the maximum sanctions under the current version of the ISA, would have a material adverse effect on its results of operations or financial condition, although it could result in reputational harm.<sup>11</sup>

Then onward, Total SA continued business as planned and increased its share in Iran's oil market. In April 2009, it signed an additional contract with the National Iranian Offshore Oil Company for the development of Iran's Dorud oil field, valued at US\$32 million.<sup>12</sup> By that year, Total SA's production in Iran was 8,000 barrels of oil equivalent per day, which accounted for an estimated 0.4 percent of the company's worldwide production.

Second, when the Halliburton issue made the headlines, not much was said about the lack of government commitment to enforce sanctions on its firms. Since the passage of the sanctions laws in the mid-1990s, there had been no systematic monitoring or punishment of non-compliance by the government until allegations of sanctions evasion began to emerge through major media channels. In fact, the federal investigations against Halliburton in 2004 was a second attempt; the first had ended in 2001 without producing any concrete findings about business misconduct or leading to any change in the firm's economic activities. According to information provided by OFAC on civil penalties and enforcement, Halliburton was not penalized for any business transactions with Iran during 2003-2004.<sup>13</sup> Given lax monitoring and negligible punishment, the firm would have been incentivized to

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<sup>10</sup> Ibid.

<sup>11</sup> Company Response 2010; Company Form 20F, 2009.

<sup>12</sup> BBC Monitoring, April 25, 2009.

<sup>13</sup> OFAC records are available from 2003 to the present at the URL below.  
<http://www.treasury.gov/resource-center/sanctions/CivPen/Pages/civpen-index2.aspx>.



act on its concern for losing market share and search for ways to continue illicit transactions with the target. Exactly why the U.S. government responded this way begs further investigation. However, it is likely that it was aware of the Iranian oil market situation and the views of the U.S. business community. “The United States needs to come to terms with the fact that when it acts alone to cut off trade and investment, other nations are happy to take its place.”<sup>14</sup>

Some important factors emerge from the case as the motivating force of strategic interactions between firms and their governments. First, given the pressure of market competition, firms seek to maximize economic profits and are willing to take risks and attempt sanctions evasion when the cost of compliance is high and the threat of punishment is low. As illustrated, a number of foreign firms were competing for oil projects in Iran, so Halliburton would have wanted to sustain its market influence while others looked for opportunities to increase their shares by replacing those of exiting firms. Withdrawing from the Iranian market would have been costly for Halliburton in the sense that it would lose current revenues, any profits from future development contracts, and existing market share, which its competitors would gain. Additionally, if these foreign firms used the capital earned from projects in Iran to bolster their activities in other markets where they compete with Halliburton, this would have certainly added to its losses. Given these economic incentives, the cost of not complying with sanctions will need to be sufficiently high to deter firms from attempting to continue illicit transactions.

What further stimulates firms to attempt sanctions evasion is the fact that sender governments may not be able to strongly enforce sanctions due to the lack of legitimate power over foreign firms. For example, in September 2010, the U.S. State Department announced that Total SA, as well as other competitor firms including Royal Dutch Shell of the Netherlands, ENI SpA of Italy, and Statoil

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<sup>14</sup> Comment by Frank D. Kittredge, chairman of the National Foreign Trade Council and Vice-Chairman of USA\*Engage (1999).

ASA of Norway, were “in the process of terminating” business investments in Iran.<sup>15</sup> Realistically, there was no guarantee that the U.S. government could coerce any of these foreign firms to comply with the Iran Sanctions Act, especially without the support of their home governments. In fact, when the Iran sanctions law was passed in 1996, Western European, Russian and South Asian firms opposed the legislation and foreign governments refused to ban their firms from taking over trade agreements with Iran that U.S. firms had terminated.<sup>16</sup> As a result, when President Clinton forced Conoco to remove its US\$1 billion bid for an Iranian oil contract in March 1995, French, German and Russian oil companies immediately placed bids to replace it.<sup>17</sup> For Conoco’s competitors, the opportunity to enter Iran’s market was too good to pass up and there was no reason to resist since the firms were bolstered by political support from home. Experts were quick to point out that U.S. sanctions had been “fairly effective” in the short term, but in the longer term, American oil companies would suffer while European companies made gains.<sup>18</sup>

However, not all firms should react to sanctions in the same way. For example, unlike Halliburton, Conoco was ready to abandon its contract with Iran when sanctions were merely threatened against the state. At a glance, the Conoco deal was dropped when the shareholders of Du Pont, the parent company, influenced the decision makers to abide by the pending law.<sup>19</sup> If this is true, Halliburton may have persisted due to the lack of pressures to withdraw from the board. More important, but less scrutinized, is the fact that the two American firms held different positions in the Iranian market. On one hand, Halliburton had characterized its Iranian contracts as “miniscule”

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<sup>15</sup> Bloomberg, September 30, 2010; Wall Street Journal, October 1, 2010.

<sup>16</sup> According to Total’s Chairman, “I know that both the president and the prime minister have very strong positions on this matter of principle... At Brussels, there is also a very firm position...the extraterritorial character of these measures is not acceptable.” Quote from Owen, David. 1997. “Total chief defies U.S. threats,” Financial Times. September 30.

<sup>17</sup> “Iran and Conoco.” Washington Post, March 16, 1995.

<sup>18</sup> Southerland, Daniel. 1995. “Stiffer trade sanctions on Iran are opposed; White House, Companies Fight D-Amato Bill.” Washington Post, September 15.

<sup>19</sup> Purdum, Todd S. 1995. “Clinton to order a trade embargo against Teheran.” New York Times, May 1.

compared with its other work but actually had considerable influence in the Iranian oil market. On the other hand, Conoco's production contract would have been one of its first in Iran, setting its established market influence to a minimum.<sup>20</sup> Since board members want the best for their company, their decision to either strongly or weakly push for withdrawal from a certain country should have taken into account market conditions that will affect the competitiveness of their firms. This implies that firms with a limited share in the target's market would be more likely to comply with sanctions since they have very little to lose, while firms with a dominant share will be more likely to take a risk and attempt sanctions evasion should sanctions be enforced.

Second, the resistance of Halliburton suggests that firms with a dominant market share require extensive pressure to exit the target's market, which may create disincentives for their governments to strongly enforce sanctions. From the sender's point of view, not only would it require a substantial amount of resources towards enforcement to deter them from evading sanctions, preserving the performance of these firms will be important, leading the government to only weakly enforce. For instance, if the U.S. government strongly enforced sanctions, it would reduce the influence of U.S. firms in the target's market while enhancing the position of its competitors. This would be particularly undesirable if the sender's share in the target's market is high and foreign competitors can seize the opportunity to increase their market share. If the sender's share in the target's market is low, enforcement would not be an issue since its firms would have readily ended their exchanges with the target due to increasing transaction costs, as reflected in Conoco's actions. This suggests that while strong enforcement may increase the chance that firms would comply with sanctions, the sender would only strongly enforce sanctions as long as its economic interests will not be drastically compromised.

Halliburton complied with the sanctions laws a few years after the federal investigations of 2004, which suggests that when a sender increases enforcement levels, its firms may be induced to

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<sup>20</sup> Porretto, John. 2007. "Halliburton completes oil field projects in Iran." Associated Press Worldstream, April 9.

change their behavior. However, strong enforcement does not automatically guarantee a positive sanctions outcome. Despite noticeable strengthening of U.S. commitment to sanctions since the mid-2000s, Iran has not ended its nuclear development program or its support for terrorist activities at this time. In December 2011, the Obama administration imposed a round of tough sanctions on the flow of Iranian oil, threatening to punish foreign firms unless their governments cut back significantly on Iranian oil imports. In early 2012, the administration began to exempt states from the oil embargo in return for reducing oil imports from Iran with the exception of China, whose firms continue to trade with and invest in Iran's oil industry and offers it an exit option. These efforts to increase multilateral pressures against Iran reflect the realization that as long as the sanctioned state can resume its business illicitly with foreign firms, that is, if its transactions with the sender can be substituted via third parties, the impact of the oil embargo will be compromised. It has recently been reported that non-U.S. affiliates of Glencore, a Switzerland-based world largest publicly traded commodity supplier, have bartered with Iranian entities that have links to the Iranian nuclear program.<sup>21</sup> This underlines another important factor: Firm compliance following strong enforcement of sanctions laws may increase the chances of coercing the target, however whether sanctions actually succeed depends on how easily the target can replace its banned transactions with exchanges with third party states or more accurately, their firms.

In all, the case of U.S. sanctions on Iran suggests that sanctions outcomes depend on the strategic relationship between sender governments and their firms. The central argument of this study is that sanctions often appear to be ineffective because senders face tradeoffs between their strategic interests to successfully coerce a target and economic interests to protect its firms' business, which are ultimately its own. Senders may impose sanctions for various reasons, such as to fulfill domestic political demands to bring a state with extreme interests to justice. Yet, their willingness to enforce sanctions on their firms depends on maximizing the economic gains of its firms as well as its own

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<sup>21</sup> Charbonneau, Louis. 2013. "Exclusive: Glencore bartered with firm linked to Iran nuclear program." Reuters, March 1. <http://www.reuters.com/article/2013/03/01/us-iran-sanctions-glencore-idUSBRE92007C20130301>.

political gains of successfully coercing the target. In cases where strong enforcement is likely to hurt its firms' current and future business activities, senders would only weakly enforce and undermine sanctions effectiveness.

This study does not suggest that the treatment of senders and targets as rational unitary actors in academic research has not contributed to the advancement of our knowledge about sanctions. In fact, the approach has been immensely useful in developing a general framework that makes predictions about how targets will respond to the imposition of sanctions. The problem is that the assumption that state and firm interests are in sync is inaccurate and ultimately reduces the explanatory power of the theories that build on it. Firms not only often disagree with the broader goals of the state, but their relationships with the government are also different in each state, which further diversifies if we consider the different sectors and industries involved. Considering that the vast range of firm-government relationships includes so much variation, neglecting these relationships is bound to lead to inaccurate predictions about how effective sanctions will be. Moreover, failure to account for government incentives to protect the interests of its firms creates the illusion that firms are entirely responsible for undermining the impact of sanctions when, in reality, they may be responding to an opportunity to evade. Hence, in order to explain the causal mechanisms through which sanctions affect a target's behavior, it is critical to develop a theory that incorporates both firm and state level interactions. In this study, I take on the task of filling in the gaps in sender-firm relationships and how they determine sanctions success.

My main contribution to the sanctions literature lies in introducing novel arguments by incorporating the role of firms and testing it quantitatively. In broad terms, the firm-level approach views sanctions in a more realistic, perhaps a more positive light. Departing from the typical boundaries of the unitary state assumption in international relations research, it allows us to unpack how sender governments strategically utilize instruments of economic coercion to pursue their political and economic goals. Highlighting the different characteristics of a state and its firms, it offers useful insights about what factors incentivize firms to push the limits of the law and how this

influences the sender's prioritization of goals and outcomes. Taken together, I am able to conclude that sanctions appear to fail so often not because the policies are inherently defective but because the sanctioning government has strategically decided to allocate its resources elsewhere, a result of a trade-off between political and economic interests. This brings us closer to understanding how important foreign policy decisions are made in the midst of contending interests. In the end, this emphasizes the "economic" in economic sanctions that complicates the issue beyond mere costs of the dispute between a sender and target, and provides richer analysis and understanding of the problem.

The theoretical framework proposed in this study and the evidence used to support it offers several implications for economic sanctions research in international relations and foreign policy decision-making. In developing a richer theory of sanctions effectiveness, the inclusion of firms offers an opportunity to draw on the vast research of international business scholars that seek ways to better incorporate politics into the performance of firms. Using the firm as the unit of analysis, most business research concentrates on how government regulations affect firm strategies, treating the state as exogenous.<sup>22</sup> Political scientists have been doing the opposite, treating firms as exogenous if they are considered at all. The firm-level approach can bring these efforts together by considering how firm actions influence government policies and vice versa, which speaks to the rising demand for more interdisciplinary research.

Policy makers can also receive guidance in designing and implementing sanctions. The important lesson learned is that even the strongest economic powers such as the U.S. are influenced by global market competition, which opens up opportunities for targets to avoid paying the full costs of sanctions. Recognizing the impact of firms on sanctions outcomes, it will be worthwhile to channel efforts towards implementing sanctions that lock in higher commitment to enforcement by each

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<sup>22</sup> See recent works in international business on firm-state bargaining (Eden et al. 2005; Nebus and Rufin 2010), firm's political capability and strategy (Feinberg and Gupta 2009; Holburn and Zelner 2010; Sun and Thun 2010), and works adopting the institutional approach (Meyer et al. 2009).

sender rather than try to pass legislation that is so weak it has no real impact or so strong that it would be impossible to enforce.

## **Overview**

The plan of the study is as follows. Chapter 2 reviews the extant sanctions literature with a focus on the factors that influence economic sanctions success. The discussion provides an overview of studies that examine the interactions between senders and targets, where the common theme is to increase the sanctions costs of targets.

In Chapter 3, I develop a general theory of bargaining and sanctions enforcement that captures the strategic relationship between the sender government and its firms, as well as the target. The chapter underlines the sender's enforcement dilemma and identifies two factors that significantly influence the sender's economic gains should sanctions be strongly enforced. These include the sender firm's share in the target's market and the substitutability of sender-target transactions. The theoretical framework generates several hypotheses that involve both firm and state behavior. The firm level predictions are illustrated in Chapter 4 while the state level predictions are tested using large-N data in Chapter 5.

Specifically, Chapter 4 presents a case illustration of U.S. sanctions on China, specifically export restrictions on satellite and related high-technology exports to China (1988-2005). Part 1 shows that firms respond to higher levels of enforcement as per the theory outlined in Chapter 3. It first provides an overview of U.S. sanctions on China after the Tiananmen Massacre and the Chinese government's policy towards foreign investment. Next, the chapter compares U.S. firm responses to sanctions before and after 1998, when federal investigations were conducted on alleged illicit technology transfers to China and several firms were fined with civil penalties. The results demonstrate that U.S. transfers of satellites and related technologies were deterred after the U.S. government strongly enforced sanctions. The case suggests that the sender's firms can be deterred

from evading sanctions in the presence of a credible threat of punishment and that when senders strongly enforce sanctions they are more likely to accomplish their goals.

Part 2 revisits the case of U.S. sanctions against China and examines whether sender firm's market share and the substitutability of sender-target transactions influenced the U.S. government's decision to carry out federal investigations and increase enforcement levels. I compare the behavior of U.S. satellite exporting firms with a control group, U.S. auto manufacturing firms in China, which were not treated with strong sanctions enforcement. The results reinforce the conclusions of previous chapters and underline the strategic considerations of the sender.

Chapter 5 conducts a large-N quantitative test of the predictions set forth in Chapter 3, using both state and firm level variables. The state level analyses offer consistent evidence that if the sender's anticipated economic losses are too high, the sender government may only weakly enforce sanctions and trade in political gains to preserve its firms' business in the long term. Under these conditions, the probability of sanctions success is low. Also, the results show that senders impose sanctions strategically, specifically when they are less likely to strongly enforce sanctions. The firm level analyses confirm these findings and bridge the theoretical linkage between state behavior and firms.

Chapter 6 concludes with an overview of the theoretical argument and results from the qualitative and quantitative studies. The strategic interactions between the sender government and its firms as well as the target offer important insights for understanding how economic sanctions work as a foreign policy instrument. Notably, the study demonstrates that the economic interests of sender governments factor into their decisions to strongly enforce sanctions so that merely imposing sanctions does not guarantee successful coercion of the target. It also reveals that sanctions are more often imposed when strong enforcement is not likely, which offers an explanation of why sanctions are used so frequently when they appear to be doomed to fail. The chapter ends with a substantive discussion of how endogenizing the costs of sanctions by including the role of firms offers a new



perspective in assessing the efficacy of sanctions, one that brings us closer to painting a real picture of how sanctions work.

## Chapter 2. Literature Review

In this chapter, I review the existing literature on sanctions effectiveness and related sanctions studies that conduct firm level analyses. After presenting the central arguments and findings, I demonstrate the need to incorporate private actors such as firms in a bargaining framework for more nuanced theory development and empirical analyses.

### **Extant studies on Sanctions Effectiveness**

States have used economic sanctions throughout history, the earliest recorded incidence being the Megarian Decree issued by the Athenian Empire denying Megarians access to its ports and marketplaces shortly before the outbreak of the Peloponnesian War (431-404 B.C.). Sanctions emerged as a major foreign policy instrument after World War I, as the League of Nations emphasized the use of non-violent means to maintain collective security and then further developed into a policy option for the United Nations after World War II as the Cold War became entrenched. Despite widespread usage, many sanctions policies failed to deliver their promised goals. Thus, the sanctions literature focused on the question of why economic coercion appears to be so ineffective. The early studies of sanctions effectiveness were mostly qualitative, where scholars conducted in-depth historical analyses on a small number of outstanding cases (Hoffman 1967; Galtung 1967; Wallenstein 1968). The most popular cases include sanctions imposed on South Africa (Crawford and Klotz 1999), Rhodesia (Galtung 1967), and Cuba (Schreiber 1973).

Largely influenced by the demand for policy guidance, however, most early sanctions studies were empirically driven to identify the factors that would enhance sanctions effectiveness rather than to make rigorous theoretical advancements on how sanctions work. Wallenstein's (1983) "three important lessons" is an example of the policy-oriented nature of early works that aimed to create a rule of thumb for practical use. Studies shared a common assumption that when economic sanctions are imposed with a goal to change the objectionable behavior of a target, the sanctioning state or sender restricts economic exchanges that inflict costs on the sanctioned state or target and coerces them to make political concessions. Given this instrumental role, the consensus was that sanctions were ineffective. The main criticism was that the effectiveness of sanctions was largely conditioned by the mobilization of military force (Dashti-Gibson et al 1997; Doxey 1980; Drury 1998; Pape 1997; 1998).<sup>23</sup>

Another shortcoming of the early sanctions literature was that the theories were not properly tested due to lack of appropriate data. Qualitative case studies offered plausible explanations for sanctions failure but were unable to produce generalizable empirical analyses. This changed when Hufbauer et al. (1990) opened a new era for sanctions research by constructing a comprehensive dataset of all economic sanctions imposed during 1914-1990, which totaled 116 cases. The database contained a set of political and economic variables that might contribute to the success of a sanctions episode. The data enabled the authors to empirically test the existing theories of sanctions effectiveness and offer a number of policy recommendations. It also provided a foundation for a large number of studies that either attempted to improve Hufbauer et al.'s (1990) original analysis (Bonetti 1998; Drury 1998; Hart 2000; van Bergeijk 1994) or use the database to make inquiries about other aspects of sanctions such as whether or not an "economic peace" exists between democracies or how long sanctions are imposed before they accomplish their policy goal (Lektzian and Souva 2003; McGillivray and Stam 2004).

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<sup>23</sup> According to Pape (1997), sanctions were only successful 5 percent of the time.

However, the release of a comprehensive dataset did not immediately resolve the problem of empirically-driven research, perhaps to a certain extent, facilitating it even further. Researchers repeatedly tested for correlations between variables and sanctions effectiveness without much in-depth theoretical discussion of the key concepts or the causal mechanisms. It was not until Pape (1997, 1998) challenged Hufbauer et al.'s (1990) assessment of sanctions effectiveness that discussions about what sanctions success actually meant emerged (Baldwin 1999; Elliot 1998), paving the way for studies that systematically compared the efficacy of sanctions to alternative foreign policy instruments (Marinov 2005). In addition, studies on sanctions effectiveness have focused on the dyadic relationship between the sender and target (Drezner 1999; Hart 2000; Nooruddin 2002), domestic political characteristics of sender and targets (Cox and Drury 2006; Hufbauer et al. 1990; Lektzian and Souva 2007; Morgan and Schwebach 1997; Wagner 1988), and the types of sanctions (Cortright and Lopez 2002; Morgan and Schwebach 1996). Scholars have also considered the impact of international institutions and have engaged in debates on whether multilateral sanctions are more effective than unilateral sanctions (Drezner 2000; Martin 1992; Miers and Morgan 1999). The empirical results remain mixed.

Throughout the 1990s, there was an increase in the use of game theoretical models to explain the sanctioning process (Drezner 1999; Eaton and Engers 1992; Smith 1995; Tsebelis 1990). Amid subtle differences, the basic narrative of these theories was that a sender threatens to impose restrictions on economic exchange with the target, unless the target agrees to comply with the sender's demand. If the target acquiesces, sanctions are either lifted or not imposed. If the target resists, sanctions are imposed. Thus far, however, many theories did not explicitly address the fact that the decision to impose sanctions is a result of strategic interactions between the sender and target. Empirical tests using Hufbauer et al.'s data (1990) began to raise concerns about potential selection issues since they only included the population of cases where sanctions were actually imposed, overlooking the instances where threats were successful and sanctions were not observed.

The significance of selection bias has been reiterated by scholars from various branches of social science employing theories of strategic choice. Strategic choice explanations assume that actors are purposive and engage in strategic interactions, that is, actors anticipate the likely responses of others and behave in ways that maximize their benefits and minimize their losses (Lake and Powell 2004). Since each actor's behavior is dependent on others, the researcher's observations are likely to be censored if we focus solely on successful outcomes and not the whole process. For example, in a study of crisis escalation, Smith (1997) argues that when a weak state (W) is threatened by a strong state (S) with military attack, if W believes S's threat, it should back down and conflict will be avoided. As a result, whether or not S would actually use force cannot be observed or determined. Using such censored observations as data, the model will be miss-specified and the researcher, who is unable to account for all relevant variables, will arrive at incorrect conclusions. Using data that included a significant number of coercion attempts ending at the sanctions threat stage, Drezner (2003) confirmed that selection bias is pronounced in works that examine sanctions employed in pursuit of economic or regulatory goals.

### **Specific Developments in Bargaining Models of Sanctions Effectiveness**

Sanctions research incorporating bargaining theory introduced strategic interactions into their theoretical explanations. By definition, a bargaining model includes two players, a sender and target, who must decide on the terms of agreement. Simply put, the players not only have to decide whether or not to cooperate, but also how to cooperate and distribute the benefits. To gain the better end of the deal, the sender tries to increase the target's costs of disagreement by linking the disputed issue to the degree to which it imposes restrictions on their economic exchanges, possibly threatening to ban it altogether. The underlying assumptions of early qualitative works reflected the components of bargaining theory, however it was the use of mathematical game theoretic analyses that helped derive testable hypotheses from rigorous theoretical arguments. Using this framework, Eaton and Engers (1992) demonstrated that sanctions were most likely to be effective when senders made a threat.

Morgan and Miers (1999) found that irresolute targets tend to back down when faced with sanctions threats and the more resolved targets reach the actual sanctions stage. This confirmed that existing empirical analyses were biased against sanctions success and that stages building up to sanctions imposition, such as threats, were important to understanding how sanctions events unfold.

In the context of security disputes, Drezner (1999) claimed that targets would be more likely to offer concessions when threatened by an ally than by a military rival. In the context of trade disputes, Odell (2000) and Zeng (2004) argued that the exchange of similar commodities and the unity of domestic interests increased the success rate of sanctions threats, respectively. Li and Drury (2006) contended that sanctions threats were less likely to succeed when the issue at stake was too high for the target. Until recently, sanctions data that included information about threats was not available. A new database, the Threat and Imposition of Economic Sanctions (TIES), was introduced in 2006, which includes a total of 888 cases where sanctions were either threatened and/or imposed during 1971-2000. Although the data only spanned for 30 years, the TIES database increased the number of observations significantly by including cases that were only threatened and stopped short of imposition as well as low-profile trade cases that had been overlooked in Hufbauer et al.'s data compilation (1990).<sup>24</sup> More importantly, the database permitted analyses without selection on the dependent variable.

Thus far, extant bargaining theories have generated hypotheses that bring us closer to understanding why sanctions seem to fail so often and improved data sources have enabled scholars to conduct unbiased empirical tests. However, some of the working assumptions can still be improved upon to better reflect reality and to produce more precise predictions about when sanctions will succeed. Sanctions scholars have directly imported a set of assumptions from bargaining theories that explain the causes, termination and consequences of international conflict (Reiter 2003). However, since the distinct characteristics of sanctions have not been addressed properly, important concepts have often been misused. Rooted in the realist tradition, models of international conflict assume the

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<sup>24</sup> See Drezner (2001) for a discussion on sanctions imposed for non-political ends.

strategic setting is dyadic and that states are unitary actors, which are driven by a common goal of winning a dispute over scarce resources (Fearon 1995). Since both the challenger and the defender aspire to win the conflict, their utility functions include the challenger's probability of winning the conflict ( $p$ ) and the defender's probability of winning the conflict ( $1-p$ ), respectively. The underlying assumption is that states inflict costs on each other directly, that states can mobilize the resources and instruments needed to fight a war in a relatively straightforward manner. As a result, a challenger *directly* imposes costs on the opponent and vice versa. This is reasonable so long as the chief executive commands substantial control over the behavior of its military and strategists so that he/she decides when and how to engage in conflict.

However, the sanctions context is different from that of military conflict. Unlike the decision to go to war, the decision to implement sanctions involves not only the leadership but also private actors such as firms who are responsible for trading with or investing in the target's market. These firms are largely profit-seeking and apolitical, so their preferences may not align with the government who pursues political interests such as the protection of national security as well as economic interests. Therefore, sanctioning governments need to effectively deter their firms from continuing transactions with the target by making a credible threat of punishment should its firms choose to evade sanctions and undermine its impact. This shows that the sanctions costs imposed on a target are dependent on the strategic behavior of intermediaries such as the sender's firms and are thus inflicted on a target in an *indirect* manner.

Moreover, the costs of sanctions materialize differently from those of military conflict. In a conflict situation, a challenger can threaten to use force by positioning its troops along the border and escalating a crisis situation. This may or may not develop into actual conflict, depending on whether the defender acquiesces to the threat. Nevertheless, the anticipation of conflict could begin to inflict costs on the defender by negatively affecting trade relations, and later result in substantial costs as violence erupts. Similarly, sanctions could begin to generate costs as threats are initiated and increased perceptions of risk create instability in the target's market (Lacy and Niou 2004; Morgan

and Miers 1999). However, actual sanctions costs are contingent on whether or not private actors such as firms are effectively deterred from continuing with business transactions with the target. If they choose to evade the law and continue exchanges, the target will be relieved from the intended hardship of the sanctions policy and be less likely to acquiesce to the sender's demands. Therefore, it is important to capture sanctions costs as endogenous to the strategic interactions between a sanctioning government and its firms.

Due to the role of firms as intermediaries, sanctions costs are more difficult to anticipate than those of military conflict. In general, threats to use force are infrequent and more binding because state leaders can be punished for not following through with their threats. For one, leaders are cautious about backing down from threats of violence since it may signal weakness, which is undesirable for the challenger as it may affect how it is perceived in future crisis situations (Schelling 1960). Also, if the issue is sufficiently salient and the sender's political regime agrees with democratic rules of governance, the informed public may be able to punish the leader for being incompetent and not fulfilling his/her promise (Fearon 1994). Besides, the threat of conflict is potentially more costly since once a conflict unfolds, it is extremely difficult to halt and even more so to reverse its course. In contrast, state leaders frequently threaten to impose sanctions only to revoke them soon after. This is possible because the inability to follow through with sanctions policies does not have direct security implications. Backing down from a sanctions threat may signal the discontent of certain domestic groups or influence a sender's credibility in future sanctioning situations. Still, its hands-tying effects are moderate since the economic agents involved are likely to share part of the responsibility.

Thus far, extant studies have identified a number of factors that influence the effectiveness of sanctions associated with sender and target characteristics, the type of sanctions, and pre-sanctions trade relations. Although the shortcomings of the early sanctions literature such as weak theory orientation and the inability to incorporate the strategic choice of senders and targets were significantly improved with the development of bargaining models, the way in which existing



theories have conceptualized sanctions costs remains problematic. Most sanctions models continue to follow the models of interstate conflict and treat the expected cost of sanctions as an exogenous factor that is determined before a sanctions episode. As a result, extant models are unable to demonstrate how costs are actually realized for senders and targets.<sup>25</sup> This is largely in part because existing studies are conducted at the state-level and overlook the important role of private actors like firms that act as intermediaries between the sender and target. In order to understand how sanctions work, sanctions costs need to be endogenized by incorporating the strategic interactions between a sender and its firms.

### **Sanctions Studies with Implications for Strategic Firm Behavior**

Among existing sanctions research, the public choice perspective, best represented by the work of Kaempfer and Lowenberg (1988, 1992, 1999), offers useful insights in developing a firm level theory of sanctions effectiveness. Broadly speaking, the basis for this approach is that both foreign and domestic policies are endogenously determined by domestic pressures where specific interests play an important role (Kaempfer and Lowenberg 1999, p. 38). This means that sanctions are conceived as a type of protectionist policy designed to redistribute privatized gains and thus, create incentives for rent-seeking behavior. In other words, sanctions serve the interests of pressure groups within the sender such as producers of import-competing goods that gain from prohibiting imports from abroad. An explanation for why senders typically impose import restrictions more often than export restrictions could be that producers tend to be more cohesive and politically effective than consumers in expressing their interests (Kaempfer and Lowenberg 1988, p. 790). The first major contribution of the public choice literature is that it relaxes the assumption that the sender and target are unitary actors, allowing firms to identify with interest groups that prefer to continue transactions with the

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<sup>25</sup> See Dashti-Gibson et al. (1997), Drury (1998), Hart (2000), Jing et al. (2003), Hufbauer et al. (1990), and Lam (1990).

target and lobby for the lifting of sanctions or to at least weaken restrictions.<sup>26</sup> This approach offers additional implications for the intensity and design of sanctions policies. As Morgan and Schwebach (1996) suggested, domestic groups can pressure sanctions to be designed to impact specific groups within a target rather than as a whole.

The second contribution of this approach is that it relaxes the assumption that sanctions are economic instruments to coerce the target to act in ways it would not otherwise. Instead, it recognizes the political signaling role of sanctions that builds on earlier works that addressed the symbolic use of sanctions to convey messages to the domestic audience of the sender or target (Galtung 1959; Lindsay 1986). If sanctions are intended to placate domestic pressures within the sender, this might be achieved by using sanctions with minimal market effect on the target's economy (Kaempfer and Lowenberg 1988). This signaling approach thus distances us from the notion that all sanctions imposed are meant to effectively coerce the target and explains why senders may strategically impose sanctions when doing so appears to be of little benefit and has a low probability of success.

Another important facet of sanctions research deals with the issue of multilateral cooperation or lack thereof. The underlying theme is that the availability of alternative markets or the persistence of states or individuals that are willing to supply the sanctioned goods and services may potentially weaken the coercive impact on targets. Scholars have argued that unilateral sanctions cannot be so effective since a single sender is incapable of blocking these alternative channels of economic exchange (Keohane 1984; Martin 1992). However, even with multilateral sanctions, one of the remaining problems is that states with an interest in utilizing sanctions face a collective action problem as the costs of joint-action may be quite high. These include domestic economic and political costs for each sender. Then how do states cooperate to jointly take on such costly task? The established wisdom is that the sender who initiates the multilateral sanctions coalition, namely the primary sender, needs to credibly commit to the sanctions policy by imposing self-costs as well as

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<sup>26</sup> Kastner's (2007) analysis of the impact of international political conflict on trade offers additional insights about which domestic interest groups would prefer more trade than less, namely those who benefit from integration into world markets.

external costs with the involvement of international institutions to convince other states to cooperate (Martin 1992). This approach rightfully acknowledges the importance of economic exchange and how it may affect senders' level of commitment to joint sanctions efforts. However, it only focuses on "getting to sanctions" and falls short of identifying the distinct stages of sanctions imposition and enforcement. As a result, it overlooks the important fact that each sender is motivated by distinct political and economic incentives. That is, senders may impose sanctions as a response to the primary sender's coercive measures to cooperate, however, if the potential economic costs of ending transactions with the target is extremely high, it may not strongly enforce sanctions and become a 'weak link.' In the end, some firms face strict sanctions rules while others do not, which will undermine the collective effort.

Some limitations of the primary sender's role in coercing other senders were discussed in Shambaugh's study on U.S. extra-territorial or secondary sanctions (1996, 1999). Through the lens of U.S. political power, the author made a distinction between the dominance and dependence of sender and third party trade relations in determining the effectiveness of U.S. extra-territorial sanctions. Specifically, the U.S. could be "dominant" in the world market as the largest consumer market or as the largest supplier of a particular set of goods. However, offering or denying access to these goods may have little impact on the behavior of foreign firms if alternative markets or suppliers can easily be located and the cost of shifting to those sources is less than the cost incurred by complying with sanctions, making foreign firms less "dependent" on the U.S. (Shambaugh 1996, p. 565). Recognizing that the availability of resources external to a particular relationship can undermine a sender's political power to coerce foreign firms suggests that under certain circumstances, senders may not be able to deter other firms from evading sanctions.

Meanwhile, history has shown that the presence of a single spoiler state is critical in determining sanctions success. If liberal institutionalists uncovered the conditions under which states cooperate to initiate sanctions, Early (2009, 2011) investigated the conditions under which states

cooperate to evade sanctions and undermine its impact.<sup>27</sup> Invoking the liberalist theory of international relations that underlines the role firms and individuals play in determining trade flows, Early (2009) contended that international trade can be explained by the “profitability of trading opportunities available to individual firms and their capacity to capitalize on them.” (p. 54) With a goal to identify the third party states that assist targets to circumvent sanctions, the author incorporated a triangular framework that consists of a sender, a target, and a third party state. Specifically, the author distinguished between third parties motivated to assist the target by security related responsibilities such as alliances and great power status and those motivated by both commercial and security incentives (Early 2011). The findings demonstrated that the latter had more significant impact on undermining sanction ineffectiveness, which verifies the profit-seeking nature of economic agents engaged in trade between the third party state and the target.

Morgan and Bapat (2003) presented a game theoretical model that directly incorporated the strategic role of firms in determining sanctions success, underlining the conditions under which firms would choose to abide by sanctions rules and how the sanctioning state plays a significant role in compelling its firms to comply with sanctions laws. Several of the hypotheses derived from their model are related to a sender’s decision to enforce sanctions. First, the higher the probability of firms being investigated for sanctions violations, the more likely a firm will comply with the sanctions law. Second, as the fine for sanctions violation increases, the probability of firm evasion will decrease. Third, as the cost of investigating sanctions evasion decreases, the number of investigations pursued by the sender will increase. Fourth, as the value of the policy benefit for the sender vis-à-vis the target increases, the number of investigations pursued by the sender increases. Using this as a building block, I further develop the idea that firms play an important role in how senders implement sanctions policies. In doing so, I identify specific firm level variables that affect sanctions outcomes and for the

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<sup>27</sup> In their comprehensive sanctions study, Hufbauer et al. (1990) identified “black-knights” or third party states that offered assistance to sanctioned states with security motivations as one of the impediments to sanctions success. However, the authors did not recognize the commercial motivations of firms that directly engage in illicit trade with the target.

first time, I utilize a new generation of sanctions data to conduct an empirical test of state level predictions adopting both national level as well as firm level variables.

An important ingredient for building a firm level theory is evidence that firms take risks in evading the law as long as they can make a profit, a fact treated as conventional wisdom in the business literature that focuses on the ways in which firms manage and adapt to risk. Studies in strategic business management investigate how firms engage in political activities to influence government policy (Hillman et al. 2004; Shaffer 1995) and organizational studies examine how firms choose the mode of entry into foreign markets to cope with high risk (Dyer 1997; Kumar and Subramaniam 1997). Studies of multinational companies focus on how firms enter into business contracts to effectively bargain with host countries (Fagre and Wells 1982; Moon and Lado 2000).

There is also systematic evidence in political science research that firms deal with high-risk situations rather than avoid them, particularly in the conflict and trade literature. Scholars have argued that military violence can negatively affect trade in two ways. On one hand, interstate conflict may impede communication, transportation, and normal functions of the market as well as disrupt financial markets, all of which increase transaction and production costs for firms. If the profit margins become too small, firms will end their existing trade relationship and look for an alternative partner (Long 2008). On the other hand, when states engaging in conflict decide existing commercial ties are interfering with their chances of victory, they may impose trade restrictions on its firms. Governments can either ban all trade with its enemy or simply raise the transactions costs of firms within the jurisdiction of each government. Morrow (1999) argued that conflict has no significant impact on trade levels since forward-looking firms can anticipate potential disputes and limit exposure to its impact *ex ante*, reducing trade levels even before the conflict occurs. Li and Sacko (2002) developed this claim further, arguing that firms cannot perfectly predict future relations and hedge against risk due to uncertainty about the factors that influence government behavior and market conditions *ex post*. Either way, the implication is that as long as firms can bypass government restrictions or market demands exists such that they can charge a high-risk premium, they will

continue with economic transactions (Li and Sacko 2002, p. 14). Additionally, there is evidence that the impact of international conflict on trade is mitigated when domestic groups that support integration into global markets have strong clout in the state involved (Kastner 2007). Further, third parties have been found to trade with targets to seek profits rather than to address state-based security concerns (Early 2009).<sup>28</sup>

Studies on the relationship between conflict and foreign direct investment (FDI) also offer important insights about how firms take risks. The conventional wisdom is that foreign investors avoid states experiencing, or highly vulnerable to political violence due to increased costs (Wagner 2006). However, there is evidence that conflict does not necessarily terminate FDI. According to the Overseas Private Investment Corporation's (OPIC) record of political risk claims, some investors remained in high risk states such as Columbia, Haiti and Liberia.<sup>29</sup> Moreover, FDI to conflict-ridden states was not confined to the extractive sector, which offers the least number of options in setting up foreign affiliates.<sup>30</sup> Some studies found that political risk had no significant impact on where U.S. MNCs decided to locate (Wheeler and Mody 1992), and similar findings were reported for Africa and Europe (Asiedu 2002; Bevan and Estrin 2000). Bevan and Estrin (2004) found that political risk in a host country was not a significant determinant of FDI in transition economies as a whole. Li (2005) argued that the impact of conflict on FDI flows is conditional on the probability of political violence. If foreign investors can predict conflict, they can adjust to preempt the shock and internalize the risks. However, if conflict occurs unexpectedly, FDI levels drop significantly. Hence, similar to trading firms, investing firms take risks as long as the anticipated benefits are sufficiently high.

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<sup>28</sup> The author discusses the case of Cuba, where firms from Canada, Mexico and Europe moved in to capitalize its resources as soon as the Soviet Union collapsed and supported its resistance against U.S. sanctions. See also Leogrande and Thomas (2002).

<sup>29</sup> OPIC is a U.S. government agency that provides firms with export credit and information about political risk.

<sup>30</sup> During 1991-2007, OPIC received 59 claims on political violence insurance, compared to 37 claims on expropriation insurance and on 4 on inconvertibility (O'Sullivan 2005).

Departing from previous explanations of sanctions success that are non-strategic, subject to selection bias, and make inaccurate references to important concepts, I now propose a theoretical framework that incorporates firm-level transactions and uncovers how sanctions actually work.

### Chapter 3. A Bargaining Theory of Sanctions Imposition and Enforcement

When economic sanctions are imposed with a goal to coerce the target to change its behavior, what determines the likelihood of sanctions success and what, if anything, can be done to make sanctions more effective? This chapter focuses on the intermediary role of firms between a sender and target that has been overlooked in extant theories of sanctions success. Although there are a number of studies that examine the impact of sanctions on the domestic political economy of targeted states and their leaders (Drezner 2011; Kaempfer and Lowenberg 1988; Marinov 2005; McGillivray and Smith 2008; Rowe 2001), few have investigated the innerworks of the sanctioning government. Much of the earlier literature on sanctions focused on the importance of increasing the target's sanctions costs. The analyses frequently concluded that the higher the costs, the more likely targets are to comply with the sender's political demands. However, they stopped short of explaining how sanctions are actually implemented by a sanctioning state, much less how sanctions costs are actually inflicted on a target. Private actors such as firms are the major economic agents of trade and investment between a sender government and target. Since firms seek to maximize economic profits while their governments pursue both political and economic interests, their preferences may not align. Thus, for sanctions to be effective, senders are dependent on their firm's willingness to abide by their sanctions laws. As such, a discussion of sanctions effectiveness should incorporate the role of firms and how they influence their government's willingness to make sanctions work.

The central argument of this study is that for sanctions to be successful, it is important that the sender's firms comply with the laws imposed. To make this happen, the sender needs to strongly



enforce sanctions on its firms. Namely, as firms are profit seeking and have strong economic interests to continue trading with or investing in a target when the risk seems worthwhile, sender governments need to demonstrate a sufficient level of commitment to enforce sanctions to deter their firms from circumventing the law. However, exercising strong enforcement is a double-edged sword for the sender. On one hand, strong enforcement will increase the costs of sanctions evasion and make the firms more likely to comply with sanctions. On the other hand, strong enforcement entails significant tradeoffs: While it increases the chance of altering the target's objectionable behavior, it also imposes high costs on the sender's firms by ending their economic transactions and placing them at a disadvantage in market competition as well as forcing them to give up some of their assets as they withdraw from the target's market. When firms are forced to end economic transactions with the target, they may try to compensate for their losses by increasing product prices or reducing the number of workers, which are costs inflicted on individuals in the sender state. Naturally, this is not desirable for the sender government. Thus, when the expected economic losses from sanctions are too high, senders may favor the economic dimension over the political and moderate its enforcement efforts. In the end, sanctions success is largely determined by how strongly the sender government chooses to deal with the problem of enforcement.

In this chapter, I develop a general theory of sanctions effectiveness that specifies the conditions under which senders strongly enforce sanctions laws on their firms as well as impose sanctions as a foreign policy tool. I verbally describe the sequence of a bargaining framework where one state (a sender) makes a demand for policy change from another state (a target) and in the process, engages in strategic interactions with firms operating within and outside the sender's territory.<sup>31</sup> The strategic framework shows precisely how the sender's expectation about its firm's response to sanctions influences its decision to enforce and impose sanctions, which in turn affects firm behavior

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<sup>31</sup> In the real world, numerous firms within the sender will engage in economic exchanges with a target, creating a complex web of market interactions. To keep the theory simple, I treat the sender's firm as a unitary actor. Firms that operate in foreign states and compete with the sender's firm are treated as exogenous.

and the target's decision to comply with the sender's demands. In the end, this chain of actions determines sanctions success.

There are two main parts to the theoretical discussion, namely how firms strategically respond to sanctions and how senders implement their sanctions policies. While interrelated and thus equally important, the emphasis is on understanding the latter. Primarily, the goal is to understand the efficacy of sanctions in compelling a target to alter its conduct, recognizing that sender governments continuously interact with their private agents. How different firms behave in distinct markets is a subject matter better suited for researchers in economics and business that employ a range of theoretical and empirical models.<sup>32</sup> The thrust of this study lies in identifying differences between state and firm interests and how these affect their cost and benefit calculations to determine sanctions outcomes.

At the outset, I present the basic assumptions. Based on an illustrative case of the U.S. firm Unocal operating in Myanmar, I demonstrate that the sender firm's share in the target's market is important in determining whether or not it complies with the sanctions law. Then, I address four major components of the theory that produces a series of predictions regarding the likelihood of sanctions evasion, the likelihood of sanctions enforcement and successful coercion, the likelihood of sanctions imposition, and finally, the likelihood of sanctions success imposed by a coalition of senders with institutional approval. In the first section, I introduce the bargaining framework and the sender's enforcement dilemma. Underlining the strategic relationship among the actors, particularly between the sender and its firms, I demonstrate when firms are more likely to evade sanctions, given their expectation of the sender's behavior. Specifically, I identify the sender firm's market share in the target and the substitutability of sender-target transactions to impact the likelihood of sanctions evasion. Building on this first piece, the second section provides an explanation for how senders will strategically respond by allocating resources towards enforcement, given their expectations of firm

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<sup>32</sup> Related works on firms and markets include models of market entry (Berry and Reiss 2006; Calem 1988; Dixit 1980; Spence 1979) and international trade amidst imperfect competition (Brander 1981, Dixit 1984; Venables 1986).

and target behavior. This underlines the conditions under which senders are more likely to strongly enforce sanctions, which are associated with a higher probability of sanctions success. In the third section, I examine the conditions under which states are more likely to impose sanctions, a step that precedes sanctions enforcement and is thus necessary to understand how sanctions work in a strategic environment. In the fourth section, I re-examine the relationship between strong enforcement and sanctions success by relaxing the assumption that sanctions are imposed unilaterally. The positive relationship between strong enforcement and effective sanctions is conditioned on the sender's ability to limit third parties from substituting the target's transactions with the sender's firms. This motivates a discussion of effectively implementing multilateral sanctions, particularly with the support of international institutions that offers various mechanisms to overcome the collective action problem exacerbated by each sender's enforcement dilemma.

While mainstream sanctions studies have overlooked the strategic relationship between sender governments and their private agents, the theory set forth in this chapter suggests that firms can substantially shape the outcome of economic sanctions policies by influencing the sender's willingness and ability to enforce sanctions as well as to impose sanctions policies in the first place. In fact, their impact is far more pronounced than conventional explanations of sanctions effectiveness anticipate.

### **Assumptions**

The argument is based on the following assumptions, which are appropriate for the study of sanctions success that is defined by how effective sanctions policies are in coercing the target to alter its objectionable behavior. The first assumption concerns how states make foreign policy decisions. I assume that states are governed by rational leaders who have decisive power over foreign policy issues. This means that leaders have distinct preferences and preference orderings over policies to maximize national interest, which concern low as well as high level disputes such as those concerning

economic transactions. In reality, the rationality of leaders may be bounded. However I assume that leaders do not behave randomly or act in ways that would harm national interest.

The second assumption is related to how domestic politics influences bargaining between states. I relax the assumption that the sender is a unitary actor and assign the sender's firms as the primary agent that engage in economic transactions with the target. I assume that the sender's firms are strictly profit-oriented and must deliver profits to stay competitive. National decision-making calculations for the sender's government include a broader range of non-economic factors than the decision-making of firms (Krasner 1978). Hence, the interests of firms and their governments may not perfectly align. The following quote is a good example of the profit-seeking nature of firms. According to a Halliburton spokeswoman, "We are in the service business, not the foreign-policy business. We have followed and will continue to follow applicable laws."<sup>33</sup>

The third assumption is that the relationship between the sender, the target, and the sender's firm is strategic.<sup>34</sup> This means that each actor's behavior depends on the expectation of what the others will do. The inclusion of firms changes the dynamics of strategic interactions between the sender and target such that the sender government is dependent on the willingness of its firms to comply with sanctions in order to inflict costs on the target. I further assume that the target's market is composed of the sender's firm and its competitors, most of which are foreign firms operating in and governed by foreign states. To keep the theory simple and tractable, the target's domestic firms are not treated as distinct actors in the bargaining framework.

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<sup>33</sup> "Halliburton Doing Business With the 'Axis of Evil.'" Washington Post, February 3, 2005. Exceptions to this rule exist where firms care about ideology, social responsibility, and reputation. However, such cases are exceptions. Unless firms claim they are non-profit, those that do not maximize profits are found to quickly cease to exist. Even firms that are heavily subsidized by the government experience significant cuts when they cease to make a profit. For example, European governments ended granting subsidies to firms that manufacture solar panel firms when return on investment proved to be low. See Birnbaum, Michael and Anthony Faiola. 2012. "Solar industry faces subsidy cuts in Europe." March 18. [http://www.washingtonpost.com/world/solar-industry-faces-subsidy-cuts-in-europe/2012/03/10/gIQArkbXLS\\_story.html](http://www.washingtonpost.com/world/solar-industry-faces-subsidy-cuts-in-europe/2012/03/10/gIQArkbXLS_story.html).

<sup>34</sup> By target I refer to the target's government. The local firms of the target state are not directly addressed here.

The fourth assumption defines how much information each actor has about one another. I assume that the two states, the sender and target, do not know the value of the sender firm's utility for being punished once it is caught evading sanctions, while firms share this information among themselves. Assuming that the sender's firm has private information about its utility for the cost of punishment is both reasonable and necessary. Although firms, particularly public firms, declare their profits to stakeholders, the exact operating costs are not always made transparent and not readily available to the public. Thus, it would be far from realistic to assume that state governments have perfect knowledge about how firms make cost-benefit calculations in regards to illicit trade and investment measures. Besides, if a sender knew exactly how much its firm would lose as a result of being punished after it is caught continuing illicit transactions with the target, it would be able to foresee how strongly it needs to enforce sanctions to deter its firm. Consequently, we would only observe cases where sanctions are successful in deterring firms from illicit behavior, making it much more likely for sanctions to succeed. However, this is contrary to what is established in the sanctions literature. In reality, our world is not as perfect as this such that we must make room for some uncertainty over the sender firm's utility.

### **An Illustration of Firms Evading Sanctions: Unocal in Myanmar**

“Politics should not be an issue for international corporations.”

Spokesman of Unocal.<sup>35</sup>

Examples abound in the ways that firms continue to engage in illicit transactions with prohibited trade partners.<sup>36</sup> In particular, the following case of Unocal in Myanmar illuminates the dynamics of how firms respond to sanctions when their profits are on the line.

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<sup>35</sup> “Doing Business in Myanmar.” New York Times, December 16, 1996.

In 1996, when President Clinton signed into law a bill that banned new investment by American firms in Myanmar if repression worsens, many oil firms were opposed to the government's policy. Some claimed that the costs will be simply too high for the firms involved, that "a U.S. company doesn't make a major investment you can turn on and off like a light bulb." Others argued that the sanctions would simply allow the Burmese government to switch their oil exploration and development to foreign competitors.<sup>37</sup>

The California-based energy firm, Unocal, was by far the most resistant. At the time, it was the single largest American investor in Myanmar, with a 28 percent interest in a pipeline project with Total of France (31%), PTT Exploration & Production Company of Thailand (26%) and Myanmar Oil and Gas (15%). The project was expected to have substantial impact on the Burmese economy, accounting for one-quarter of the \$5.27 billion in foreign investment reported since 1988.<sup>38</sup> While other U.S. firms such as Atlantic-Richfield Company (ARCO), Macy's, Hewlett-Packard Company, and PepsiCo Incorporated pulled out in response to the sanctions drive, Unocal continued engagement with Myanmar. Their argument was that if it pulled out, an Asian company would simply pick up its share of the project and that this would not contribute to leadership change in Myanmar.

In September 1998, the state of Massachusetts went to federal court against the National Foreign Trade Council and some 600 American businesses to defend its sanctions policy, which penalized firms that invested in Myanmar.<sup>39</sup> Two years later, the Supreme Court struck down the

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<sup>36</sup> There is evidence that Chinese firms have evaded UN sanctions on North Korea (Noland 2008), and that Israeli firms continued to trade with Iran despite unilateral sanctions. See Sadeh, Shuki. 2012. "The badly kept secret of Israel's trade throughout the Muslim world." Haaretz, January 19. <http://www.haaretz.com/business/the-badly-kept-secret-of-israel-s-trade-throughout-the-muslim-world-1.408103>.

<sup>37</sup> Woodyard, Chris. 1996. "Oil firms fight sanctions bill for Burma." Houston Chronicle, July 6.

<sup>38</sup> Richardson, Michael. 1997. "Unocal Expands Burma Investment as Others Pull Out Over Rights." New York Times, January 31.

<sup>39</sup> Haq, Farhan. 1998. "Rights-Burma: Latest Crackdown Boosts Pressure on Investors," IPS-Inter Press Service, August 13.

local law of Massachusetts in favor of Unocal and other like-minded firms.<sup>40</sup> Notwithstanding warnings from investment officials that doing business with dictators was risky and despite losses in share value, Unocal continued to claim that withdrawal was not an option. According to Unocal's public relations manager, "I have no shame in saying a corporation is in business to make a profit."<sup>41</sup> By 2003, as pressures mounted to withdraw, Unocal signaled it would make changes by hiring a law-firm "to help it comply with new U.S.-imposed economic sanctions."<sup>42</sup> However, way into mid-2005, the firm still maintained its 28 percent stake in the pipeline project.

This anecdote suggests that Unocal continued illicit exchanges with Myanmar despite U.S. laws that prohibited such activities. However, it would be difficult to generalize from this example that all firms attempt to evade sanctions at all times. In fact, due to rising risk levels in the post-sanctions period, many firms doing business in the target's market abide by sanctions laws once the consequences are made clear.<sup>43</sup> Only when a firm's economic interests conflict with its government's political agenda such that they are faced with substantial and difficult-to-recover losses should these agents be motivated to continue illicit transactions. In the case of Unocal, the firm resisted the pressure of compliance, essentially evading the law if not in complete violation of it, until it decided illicit transactions were no longer profitable.

Let us consider the firm's cost-benefit calculations in detail. If a firm readily ends exchanges and withdraws their business activities in response to sanctions, it may face various costs in addition to the revenue lost. First, the firm that complies may lose foothold in the target's market by losing market share. Once lost, these shares may not be easy to reclaim even after sanctions are lifted.

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<sup>40</sup> Risen, James. 2000. "The Supreme Court: A Corporate Actor; Trade Ruling is Victory for Oil Giant." *New York Times*, June 20.

<sup>41</sup> "U.S. oil giant Unocal to stay in Myanmar." *Agence France Presse*, September 4, 2003.

<sup>42</sup> "Unocal hires Hogan and Hartson to aid compliance with Myanmar sanctions." *Bulletin's Frontrunner*, September 30, 2003.

<sup>43</sup> In response to sanctions, Atlantic Richfield Co (ARCO) withdrew from Myanmar in 1998 due to a change in investment priorities. *Xinhua News Agency*, August 12, 1998.

Second, complying with sanctions will be costly for the firm if sunk costs were high when it entered the target's market. These costs could be related to personnel training, building the infrastructure needed for production operations to run, and establishing a network of agencies. Third, by complying with its government's demands, the firm may earn a reputation for being an unreliable trade and investment partner that easily surrenders to government pressure. This may have a prolonged, negative impact on the firm's business prospects with the target as well as with other potential partners.

Meanwhile, engaging in illicit transactions with the target also comes with a price. From an operational perspective, a firm that evades sanctions will be less efficient as it will pay higher transaction costs for maintaining a network of partners abroad to handle payments, deliveries and operations in secret.<sup>44</sup> Also, there are costs involved in bribing officials and avoiding lawsuits. Thus, when a firm attempts to circumvent the law, it indicates that the immediate or long-term benefits of continuing illicit exchanges with the target are so high that these additional costs can be offset. Otherwise, firms will not take on additional risk.

What is notable is that evading sanctions without being penalized or even detected has not always been an uphill battle for firms. More often than we expect, firms have been able to take advantage of loopholes in existing sanctions legislation or have been granted special treatment by their governments that allow them to continue engaging the target. For example, the Office of Foreign Assets Control (OFAC) of the U.S. Department of the Treasury has been appointed to administer and enforce economic sanctions against targeted states, terrorists, international narcotics traffickers, and persons engaged in activities related to the proliferation of weapons of mass destruction.<sup>45</sup> The OFAC operates under Presidential national emergency authorities and authority granted by specific

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<sup>44</sup> Fineren, Daniel. 2012. "Barter, other steps help Iran firms beat sanctions." Reuters. February 29. <http://www.reuters.com/article/2012/02/29/us-iran-trade-idUSTRE81S12G20120229>.

<sup>45</sup> <http://www.treasury.gov/resource-center/sanctions/OFAC-Enforcement/Documents/08182010.pdf>. The official OFAC website provides information on civil penalties and enforcement. See <http://www.treasury.gov/resource-center/sanctions/CivPen/Pages/civpen-index2.aspx>.



legislation to impose restrictions on economic transactions under U.S. jurisdiction. Reports have confirmed that the federal government has granted numerous firms with special licenses that permit them to continue transactions with targets and avoid any encounters with the law. In 2010, a list of 10,000 special licenses granted by the OFAC to almost 4,000 American companies over the last three U.S. presidential administrations was published, which allowed these firms to do business with sanctioned countries that would otherwise have been prohibited.<sup>46</sup> Most of these licenses were approved under U.S. law mandating that agricultural and medical humanitarian aid be exempted from sanctions designated to serve foreign policy goals. The problem was that these exemptions were interpreted so broadly that the foreign policy benefits of some cases were not clear.

Then what can be done to keep firms from evading the law? Simply put, if the overall costs of evading sanctions offset the benefits, firms will be more likely to comply with the law. One way in which a sender can deal with this issue is to demonstrate a high level of commitment to end illicit practices. That is, the sender can strongly enforce sanctions laws by allocating ample resources towards detecting illicit behavior, conducting prosecution and imposing penalties on the firms that confront the law. In doing so, it is important for strong enforcement to combine measures to increase the probability of detection as well as inflict sufficient punishment on the firms since the combination of high detection and light punishment, or low detection and heavy punishment will reduce the anticipated costs for firms. When the sender is highly committed to enforcement such that evading sanctions is no longer profitable, firms should be more likely to comply with sanctions.

### **The Bargaining Framework**

I propose a bargaining framework that incorporates firm behavior in a broader sanctions context. Here is a short description of the setup: A sanctions episode begins when a potential target engages in some objectionable behavior and a sender decides to respond with economic sanctions or negative

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<sup>46</sup> Becker, Jo. 2010. "U.S. Approved Business with Blacklisted Nations." New York Times, December 23. <http://www.nytimes.com/2010/12/24/world/24sanctions.html>.

inducements. A sanctions episode may begin with a sender's threat to impose sanctions or by direct imposition. Sanctions are considered successful or effective when the target acquiesces to the sender's demand for policy change. Specifically, the bargaining framework incorporates the following actions:

- (1) A sender demands that the target changes its objectionable policy and threatens to impose sanctions otherwise; if the sender chooses to accept the target's behavior and does not initiate sanctions, it suffers some political punishment for being ignorant and irresponsible.
- (2) Should the sender threaten sanctions, the target decides to acquiesce to the sender's demands or resists. In the former case, the threat is effective and the sanctions episode ends.
- (3) In the latter case, the sender imposes sanctions and allocates some amount of resources  $x$  towards punishing firms that attempt to evade sanctions.
- (4) Observing the amount of resources allocated to enforcement, the sender's firm chooses between complying with the sanctions law and evading sanctions. Should the firm decide to take a risk and continue illicit transactions, it will be punished by the sender with some probability  $p/(1-x)$ . That is, the more resources the sender devotes towards enforcement, the more likely it is to detect illicit transfers. If the sender successfully detects evasion, it imposes a fine on the firm. Meanwhile, the firm pays some cost to cheat the sanctions law. Also, due to limitations on jurisdiction, a sender can only punish firms operating within her territory, which leaves foreign firms beyond direct control. The foreign firms would include competing firms controlled by non-sanctioning governments or by senders that are only weakly committed to enforcing sanctions. The possibility that these competitors will replace the sender's firm in the target's market adds to the firm's expected sanctions costs.
- (5) The target either rejects the sender's demand or acquiesces and the sanctions episode ends.

The most important element of the bargaining framework is stage (3). When the target refuses to comply with the sender's political demand, the sender devotes some amount of resources towards monitoring and punishing the firm's behavior. That is, it delegates responsibility to police its firms

for non-compliance to an enforcement agency that is independent of the sender. Since the sender has interest in their firm's good performance, it cannot credibly threaten to punish them for attempting to evade sanctions. However, since the enforcement agency does not share interests in protecting the firm's economic gains, it can credibly threaten to punish the firm. This demonstrates that the sender government depends on its firm's willingness to comply with sanctions for the target to acquiesce to its demands and determine sanctions success. That is, the sender needs to effectively deter its firms from continuing illicit transactions with the target by posing a credible threat of punishment in stage (3) for sanctions to be successful in stage (5). To successfully induce the target, the sender would need to allocate sufficient resources towards detecting, monitoring and successfully prosecuting those firms that do not comply with the sanctions laws. These actions determine the sender's level of enforcement, which varies from high to low, or strong to weak.

The emphasis on the problem of sanctions enforcement and how it impacts sanctions outcomes distinguishes this theoretical framework from traditional theories of sanctions effectiveness that focus on sanctions imposition alone. The components of enforcement include both monitoring and verification of sanctions evasion, although it tends to be designed to deal with the after-effects of non-compliance.<sup>47</sup> The details of enforcement may not be readily observable to outsiders as they are embedded in national decision-making processes. However, what third parties (including the researcher) can observe or infer strong enforcement from include governmental follow-up procedures in regards to media reports about firm evasion, monetary penalties imposed on firms once they are prosecuted, and diminishing firm performance in the target's market in the post-sanctions phase.

In stage (4), a firm already engaged in or about to sign a business contract with the target has prior information to form an expectation about how strongly its government would enforce sanctions on its transactions. In game theoretic terms, the firm holds some "belief" of the degree of sanctions

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<sup>47</sup> "Monitoring" is a technical and objective process of data collection and intelligence gathering about a specific phenomenon or activity and the assembling of this information in to a coherent picture. "Verification" is defined as a process of establishing truth about, or correctness of, an assertion or data concerning compliance with an international obligation, through examination or demonstration. These concepts are adapted from Knight (1998, 66-68).

enforcement. If sources indicate that the sender has allocated many resources towards detection and punishment, the expected enforcement level will be strong. If the sender is reported to be insufficiently prepared, the expected enforcement level will be weak. Since it is assumed that firms are strategic and profit-seeking, they will behave in the best way possible to maximize their profits based on these expectations. Firms that immediately comply with the sanctions law will lose all benefits from current and future transactions with the target, but save the costs generated by operational inefficiencies. Firms that attempt to evade sanctions will keep the lucrative gains from illicit transactions while running the risk of detection and punishment, most likely to pay a fine or pay reputation costs. If the anticipated level of enforcement is high so that the cost of punishment is higher than the earnings from illicit exchanges, the sender's firm will comply with the sanctions law. If the expected enforcement level is low so that the costs of punishment are minimal compared to the benefits of illicit transactions, the firm will take a chance and attempt evasion.

*Hypothesis 1a: The sender's firm is more likely to evade sanctions when the expected level of enforcement is low.*

Notice that when addressing the sender's firm in stage (4), I do not single out any domestic variables such as firm access to national politics, the size and salience of the sectors affected, or the multinationality of affected firms. When discussing enforcement, I also assume it is a function of government capacity or willingness. This is not because these firm level variables are not important- they could make firms more or less susceptible to sanctions evasion or impose political pressure on the sender government to weaken or strengthen enforcement levels. Also, this is not meant to dismiss the fact that a sender's enforcement decision could involve political considerations within and between states, particularly if politically well-connected firms or sectors are involved.<sup>48</sup> The reason behind these simplifications is that the focus of this study is on the different interests of a sender state

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<sup>48</sup> The political weight of firms has been discussed in Alt et al. (1999) and Grossman and Helpman (1994), to name a few.

and its firms rather than within or among senders and firms and how this impacts sanctions outcomes by creating distinct incentives to impose and enforce sanctions. The decision to keep the theory concentrated on how a sender and its firms interact in a general sense is a first step to include private agents in sanctions analyses and definitely, not the last.

As an alternative, I generate specific predictions about how firms will respond to sanctions by explaining how firms that are involved in international exchanges with the target, namely trading and investing firms, evaluate the costs and benefits of complying with sanctions laws. The distinction has been made for the purpose of theory development. Many trading firms also invest in foreign markets so the characteristics of trading and investing firms are not mutually exclusive.

### ***Trading Firms***

When a target refuses to comply with the sender's demands and economic sanctions are imposed, the sender's trading firm is either partially or completely prohibited from continuing exchanges with the target so that exporting to, importing from and even delivering certain products and services to and from the target becomes illegal. If the sender's firm earns a substantial amount of revenue by trading with the target or if the sunk costs associated with entering the target's market are high, the suspension of such transactions will be costly to the extent that the firm may be reluctant to comply with sanctions. Another concern is that if the sender's firm terminates trade relations with the target, it will create commercial opportunities for foreign firms that are seeking to enter the target's market or to expand existing market share. This is supported by evidence that global trade with the target has actually increased during sanctioned periods (Caruso 2003). If foreign firms are able to take over the sender's market share and secure more cash flows to deploy in other markets where they compete with the sender's firms, the anticipated costs of sanctions will further increase. Essentially, this could result in the sender's firm losing leverage in the target's market.

Thus, a firm's decision to either comply with or defy sanctions will depend on its ability to endure the baseline cost of evasion as well as its intention to take a risk. This is associated with the

sender firm's market share in the target. For example, if the sender's firm has a minimal share, ending transactions by complying with sanctions will not do much damage, and the revenue earned from its transactions with the target may be insufficient to cover the costs of inefficiency created by continuing illicit transactions. Thus, in this case, the firm will be less likely to evade sanctions. On the contrary, if the sender's firm has dominant market share and enjoys extensive exchanges with the target, the suspension of existing trade relations will be quite costly. For one, the revenue lost will be sizable. Moreover, the firm will not only be capable of bearing the costs of inefficiency, but also consider it worthwhile to maintain its position in the market to maintain leverage over the target. Hence, the firm will be more likely to attempt sanctions evasion.

Another important point is that although a sender may force its own firms to suspend exchanges with the target, it cannot prevent foreign firms from continuing their transactions due to limited jurisdiction. Should sanctions be enforced, therefore, the target will attempt to substitute its lost exchanges with the sender's firms by increasing its exchanges with the sender firm's foreign competitors. A trading firm's response to sanctions will thus be influenced by the ease to which a target can find an alternative trade partner or source, namely, the substitutability of its exchanges with the target. For instance, if bilateral trade between the sender and target consist of goods or services that are highly fungible such as basic manufactured goods, the target can easily replace its export or import channels by partnering with foreign firms that are willing to trade. When such exit option is readily available, the sender's trading firm will anticipate high sanctions costs in that it might lose its revenues from trade, market share, and eventually leverage over the target. In effect, this will create an incentive to take a chance and continue illicit transactions with the target. When trade between the sender and target consists of high technology goods or services that cannot be easily substituted, the sender's firm will feel less threatened and perceive sanctions costs to be low. As a result, the firm will be more likely to comply with the sanctions law.

### *Investing Firms*

Then, let us consider firms that invest capital in the target, particularly in the form of foreign direct investment (FDI).<sup>49</sup> These firms are mainly multinational corporations (MNCs) that have control over an enterprise outside the sender (or home country) with foreign subsidiaries operating in the target (or host country). When sanctions are imposed, the sender's investing firm is either required to disinvest, namely to withdraw ownership of physical or financial assets, or is prohibited to establish new investments. If the firm owns a significant amount of assets in the target, disinvestment will be costly since despite the increase in the free flow of capital in the global economy, FDI has been argued to be mobile *ex ante* but relatively illiquid *ex post* (Vernon 1971).<sup>50</sup> There may be high sunk costs involved in the set-up of subsidiaries on the ground and the building of close ties with the host government, and due to the nature of the investment, it may not be easy to liquidate and relocate the firm's assets elsewhere.<sup>51</sup>

Under normal circumstances, a host country has minimal leverage over corporate investment decisions so that firms are more or less free to exit the target's market as uncertainty about risk fluctuates. When a sender initiates sanctions against a host country, however, diplomatic relations may turn sour between the two states, if not turn hostile. In principle, since the sender's firm can no

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<sup>49</sup> FDI is defined as private capital flows that provide a parent firm with control over an enterprise in a third country.

<sup>50</sup> I assume that investing firms are more mobile than discussed in the earlier FDI literature and focus on the costs firms pay when they withdraw from a host country and try to relocate. According to the obsolescing bargain theory, once investors have sunk capital into projects, particularly in primary and extractive industries, their lack of mobility shifts the bargaining advantage to the host country (Kobrin 1982). More recent work suggest that firms are mobile. For instance, the race-to-the-bottom literature claims that owners of capital will pull out if their demands are not met by the host country (Klein 2000). Biglaiser and Lektzian (2011) argue that U.S. firms withdraw their investments when sanctions are imposed on a target, and return when the uncertainty of risk diminishes.

<sup>51</sup> Given that firms do their "homework" and conduct elaborate political risk assessments regularly prior to making investment decisions, if a firm invests in a state targeted with sanctions, it would suggest that the expected profits are sufficiently high. This is consistent with the well-known fact that firms act on the notion of "high risk, high returns." Firms with established investments in a target should have factored in the possibility of sanctions and taken measures to deal with the anticipated costs. For instance, the firm could reduce the target subsidiary's percentage of total operations or choose an entrance mode such as a joint-ventureship that permits execution of stronger managerial rights.

longer hold up its end of the original business contract under sanctions, the remaining assets in the host country are subject to the original terms of the deal. In reality, however, the protection of private assets rests less in legal doctrines than in host country discretion. Thus far, the host country monopolizes the power to define and enforce property rights within its territory and is not held legally accountable to any higher authority when it breaks its promise to protect foreign assets. Studies on the determinants of FDI have claimed that how a host country attracts foreign investment will depend on its ability to make a credible commitment towards providing a stable political environment that protects the property rights of firms (Biglaiser and DeRouen 2006). Throughout the last decade, host countries have competitively established Bilateral Investment Treaties (BITs) with foreign investors that provide property rights protection (Elkins et al. 2006).

Similar to the trading firm, whether an investing firm complies with or attempts to evade sanctions is a function of the substitutability of sender-target transactions, which threatens replacement in the target's market. Global capital markets are likely to provide a certain degree of substitutability for ownership of the target's assets. In other words, once the sender firm disinvests, prospective owners from other states may step forward to buy the target's assets and increase their influence over the target. Ultimately, this will reduce the political impact of the sender's sanctions policy.<sup>52</sup> However, the willingness of potential owners to replace the sender's transactions depends on their perception of risk in the target's market following the sender's disinvestment. For example, when disinvestment occurs in a target that is politically unstable and has an underdeveloped capital market, the pool of potential owners of the disinvested assets in the target would be small. This will make sanctions less costly for the sender's firm, since if market conditions are perceived to be so bad by potential owners, it may be better off disinvesting from the target rather than withstanding the risks,

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<sup>52</sup> When asset prices fall due to disinvestment, the target may directly benefit and render it relatively more costly for the sender's firm. Specifically, once the sender's firm abandons ownership of the target's assets, the wealth owners of the target may take advantage of a "fire sale" and increase their return on investment. This was the case in South Africa (Kaempfer et al. 1987, 468).



inefficiencies and costs that accompany illicit transactions. In contrast, when disinvestment occurs in a target that is politically stable and has a well-developed capital market, there will be a large pool of potential investors ready to replace the sender's transactions. This will raise the costs for the sender's firm should it comply with sanctions as foreign investors will take over its exchanges and take away the benefits. Thus, if the sender firm's transactions with the target are easy to substitute, it will be incentivized to attempt sanctions evasion. If the sender firm's investment is difficult to substitute with foreign investors, the firm will be more likely to comply with sanctions.

Considering the case for both trading and investing firms, the following predictions emerge:

*Hypothesis 1b: The sender's firm is more likely to evade sanctions if its market share in the target is dominant.*

*Hypothesis 1c: The sender's firm is more likely to evade sanctions if its transactions with the target are easy to substitute.*

Thus far, we have established the conditions under which firms are more likely to evade sanctions. The next section examines how these firms influence a sender's decision to impose and enforce sanctions, and how this relates to sanctions success.

### **When will the Sender Strongly Enforce Sanctions Against its Firms?**

The bargaining framework indicates that deterring the sender's firm from attempting to circumvent sanctions requires the sender to strongly enforce sanctions. Then, one may ask why the sender does not always choose to allocate a sufficient amount of resources towards enforcement? Unlike firms, senders seek to successfully coerce the target and maximize political interests as well as pursue economic interests. In fact, senders share economic interests with their firms to some extent. States have long been strong supporters and defenders of their businesses abroad to enhance their national interest or geopolitical influence in critical regions, often endowed with valuable natural resources, cheap labor and a large market. Also, governments directly rely on their firms for economic growth, employment, and even national prestige. In the case of the United States, recent studies have shown

that exporting firms represent a small fraction of the total number of firms, and that these firms have positive performance characteristics which include higher productivity, larger firm size, higher wages, and greater skill/capital intensity (Bernard et al. 2007). Among the 5.5 million firms operating in the U.S. in 2000, a mere 4 percent were exporters. Among these exporting firms, the top 10 percent accounted for 96 percent of total U.S. exports. Since only the most productive firms are able to overcome the initial costs of entering foreign markets and retain profitable exchanges, senders have strong economic incentives to protect and reinforce their firms operating with foreign states.

If sanctions are strongly enforced, the sender firm's trade and investment activities are partially or completely suspended. In fact, enforcement is costly as an *outcome* as well as a *process*. First, if a sender strongly enforces sanctions by allocating large amounts of resources towards detecting and prosecuting sanctions evasion, it can compel its firms to lose foothold in the target's market. It could marginalize its firms, even push them out of the target's market, creating an opportunity for foreign firms to replace them. This would lead to loss of revenue and market share, and in the weakening of the sender's political influence over the target. Once transactions between the sender and target are reduced to a minimum, terminating such relations would have little impact on the target's well-being and ultimately, weakening the sender's ability to coerce the target to change its objectionable behavior.

Second, it is also costly for the sender to allocate sufficient resources towards enforcement. For instance, the establishment of special government agencies with the mandate to monitor and detect illicit firm behavior, recruit and train personnel to verify sanctions evasion cases and take them to trial requires time and physical commitment. No evasion attempt is illegal unless it is effectively proven to be, which requires a significant amount of effort on the part of government authorities. If strong enforcement requires the coordination of several bureaucratic agencies and officials that are often competing against each other for a larger share of the national budget, extra costs will emerge

due to the difficulty of mobilizing them towards a common goal.<sup>53</sup> Also, practical issues in inspecting and policing incoming and outgoing transit goods increase the economic burden of the sender.<sup>54</sup>

Hence, senders face a tradeoff - the more they enforce sanctions and restrict firm transactions, the more they harm their businesses and themselves economically in order to accomplish their political objectives. Moreover, it is difficult to know how strong enforcement has to be for it to be effective. Recall that the sender does not know exactly how strongly sanctions need to be enforced to deter the sender's firm from evading sanctions is the main source of the sender's enforcement dilemma.<sup>55</sup> Therefore, optimizing the level of enforcement to maximize gains on both political and economic fronts is crucial for the sender. Then, under what conditions would a sender strongly enforce sanctions to increase the chance of sanctions success?

First, the degree to which a sender strongly enforces sanctions should take into account how much its firms stand to lose in market competition should sanctions reduce or terminate economic transactions with the target. If the sender's market share is low, which indicates that the sender's firm has minimal exchanges with the target, it would not need to strongly enforce since with little to lose, its firms would readily comply with sanctions. If the sender's market share is high, transactions will be too valuable for the sender's firms to willfully surrender, at which point sanctions will become unenforceable as the firms will evade at all costs. In this case, a rational sender would only weakly enforce sanctions. As the sender's market share increases from low to high levels, however, the sender's firm will have incentives to evade sanctions and continue its transactions illicitly, making it

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<sup>53</sup> In the case of the U.S., the Commerce Department and State Department often compete for more authority over the execution of export controls.

<sup>54</sup> For instance, Customs and the Economic Surveillance Service (ECD) in the Netherlands were the two major agencies that had the powers to enforce UN sanctions against Rhodesia. Even with such agencies intact, only few reports of illicit transactions were made. Customs was often understaffed and its growth could not keep up with the increase in the flow of goods through Dutch ports. Since its surveillance focused on the documents accompanying the goods in transit, it was difficult to identify the origin of the goods and even more difficult to determine the final destination. The investigative powers of the Economic Surveillance Service was more comprehensive as its activities were not limited to the border but with the bookkeeping of importers and exporters. However, the selection of the cases to investigate was largely determined by the politics between its director and the Ministry of Economic Affairs (Kuyper 1978, 91-98).

<sup>55</sup> This was one of the assumptions underlying the bargaining framework.

necessary to strongly enforce sanctions and deter such action. The implication is that strong enforcement will be more likely when the sender's firm has a *moderate* share in the target's market where it is enough for firms to have an incentive to evade sanctions, but not so much that they cannot be deterred by strong enforcement. This generates a curvilinear prediction about the sender's willingness and ability to strongly enforce sanctions, which offers direct implications for sanctions success: the probability of strong enforcement would increase if the sender's firm has a moderate market share in the target, but would decrease if the sender's firm either has a low or high share. Since strong enforcement increases the chance of sanctions success, sanctions will be more likely to succeed when the sender's market share is moderate and less likely to succeed when its market share is low or high.

*Hypothesis 2a: Senders are more likely to strongly enforce sanctions when the sender firm's share in the target's market is moderate and less likely to strongly enforce when its share is either low or high.*

*Hypothesis 2b: Sanctions are more likely to succeed in coercing the target when the sender firm's share in the target's market is moderate and less likely to succeed when its share is either low or high.*

Second, the sender's decision to strongly enforce sanctions will be influenced by the possibility of sanctions actually being effective, which is conditioned on the substitutability of transactions between the sender and target. This is associated with the structure of trade between a sender and target as well as the target's investment environment. For instance, trade between South and North Korea was able to absorb the negative impact of Japanese sanctions against North Korea in the 2000s, since 70 percent of the trading items between North Korea and Japan overlapped. However, after the shelling of the Cheonan corvette in March 2010, South Korean experts predicted that should South Korean sanctions be enforced, bilateral trade between North Korea and China would not be able to make up for the exchanges between the two Koreas. This was because what the North exported to the South was sold at a much higher price in the Korean market and since China already

exported similar products to South Korea (i.e. sand, mushrooms, seafood, and agricultural goods). Among the goods North Korea exported to South Korea in 2007, more than 60 percent was not exportable to China (Suk 2010).

The next example introduces the concept of “political risk.” Broadly defined, political risk is “the probability of disruption of the operations of multinational enterprises by political forces or events, whether they occur in host countries or result from changes in the international environment. In host countries, political risk is largely determined by uncertainty over the actions not only of governments and political institutions, but also of minority groups such as separatist movements.”<sup>56</sup> Political risk has been more narrowly defined as 1) breach of contract by governments; 2) adverse regulatory changes by host countries; 3) restrictions on currency transfer and convertibility; 4) expropriation and nationalization; 5) political violence and 6) non-honoring of sovereign guarantees.<sup>57</sup> The threat of expropriation used to be the most challenging issue for foreign investors when entering developing markets after World War II. For example, most Latin American countries expropriated U.S. multinational firms in the 1930-70s due to nationalist sentiment, converting foreign subsidiaries into state-owned enterprises. In recent years, however, government intervention such as regulatory changes that may reduce the profitability of operations is considered to be one of the most serious risks to investors.<sup>58</sup>

Investors have repeatedly ranked political risk highest among their major concerns when entering developing markets. Results from a survey conducted by the Economist Intelligence Unit in October 2006 clearly demonstrate how foreign investors perceive political risk. In the survey, 177

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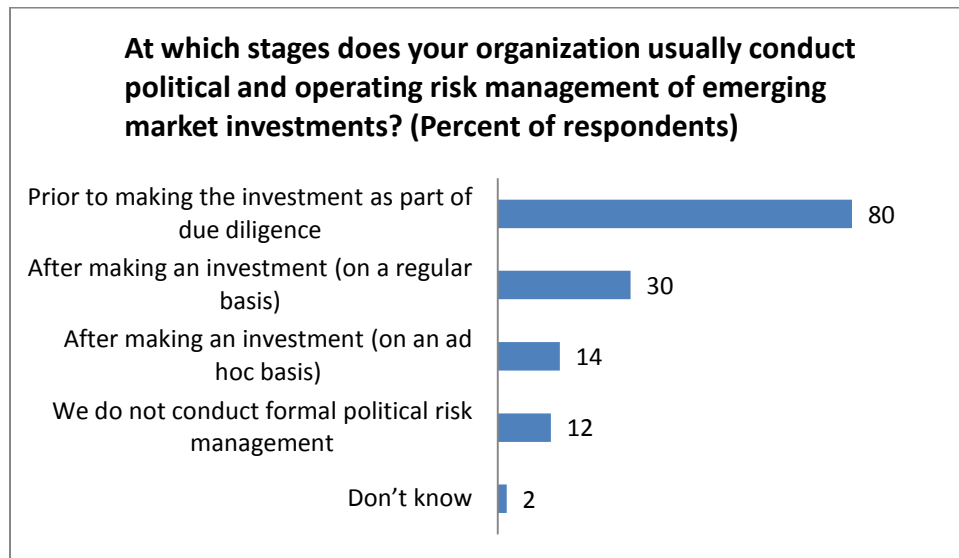
<sup>56</sup> World Investment and Political Risk 2009, p. 28.

<sup>57</sup> Ibid, p.30.

<sup>58</sup> According to Henisz and Williamson (1999), multinational firms operating in countries where governments can easily change the rules of taxation or regulation face direct and indirect political hazards. The former occurs when the government is more likely to behave in an opportunistic manner for its own benefit, and the latter when the local firm partnering with the multinational firm acts opportunistically and makes requests to the government that would favor them over the foreign firm. In their language, this study focuses on direct political hazards.

global executives were asked questions about their attitudes towards operating risk management in the context of emerging market investment.<sup>59</sup> Primarily, firms demonstrated their sensitivity to political risk when entering a foreign market. Figure 3.1 shows that 80 percent of the respondents said their firms conducted elaborate political risk assessments regularly *prior to* making investment decisions. According to Figure 3.2, 65 percent of the respondents said their firms had cancelled a *planned* investment due to concerns about political risk, while only 26 percent reported to have cancelled an *existing* investment due to political risk. This shows that when firms perceive a risk to pending investments, they take immediate action and withdraw their plans. This indicates that when the political risk level is high in a target, it will be less able to attract foreign capital to substitute losses due to the sender's withdrawal.

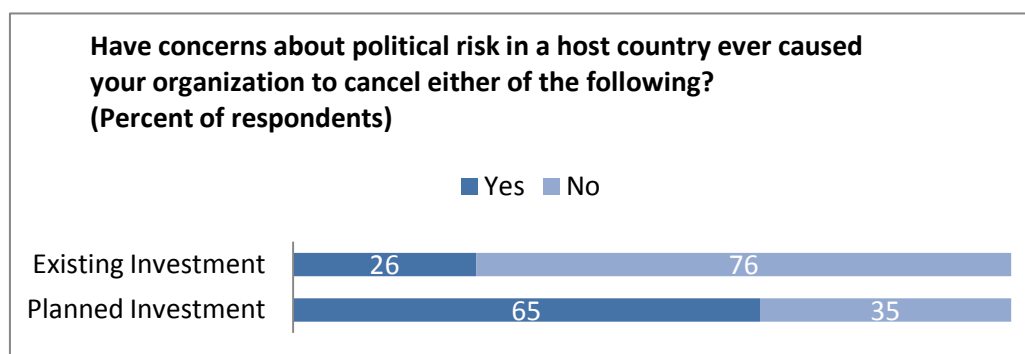
Figure 3.1: Political Risk Calculations



Source: Economist Intelligence Unit Survey

<sup>59</sup> Operating Risk in Emerging Markets. 2006. A Report from the Economist Intelligence Unit.

Figure 3.2: The Impact of Political Risk on Planned and Existing Investment



Source: Economist Intelligence Unit Survey

Taken together, when the target can easily find a substitute channel to import or export goods and services, or can easily attract foreign investors to buy its assets, its sanctions costs will decrease while the anticipated sanctions costs will increase for the sender's firm. In this case, the sender's firm will be more likely to evade sanctions, making sanctions unenforceable. Then, anticipating that sanctions will hardly be effective, the sender will only weakly enforce sanctions. When bilateral transactions are difficult to substitute, however, the target's sanctions costs will be high. Since there is a chance that the sender's firm will comply with the law, the sender will be more likely to strongly enforce. What follows is the prediction that a sender is more likely to strongly enforce sanctions when the sender's transactions with the target are difficult to replace. Put in terms of sanctions outcomes, sanctions will be more likely to succeed when the sender's transactions with the target are difficult to substitute.

*Hypothesis 3a: Senders are more likely to strongly enforce sanctions when the sender's transactions with the target are difficult to substitute.*

*Hypothesis 3b: Sanctions are more likely to succeed when the sender's transactions with the target are difficult to substitute.*

Table 3.1: The Determinants of Sanctions Success

		Sender's Market Share in the Target		
		Low	Medium	High
<b>Substitutability of Sender-Target Transactions</b>	High (easy to substitute)	Weak enforcement	Strong enforcement, but sanctions not likely to change target's behavior	Weak enforcement
	Low (difficult to substitute)	Weak enforcement	<i>Strong enforcement. Sanctions likely to be successful.*</i>	Weak enforcement

Table 3.1 summarizes the predictions in terms of the two independent variables. In sum, success in coercive bargaining requires the sender to increase the expected costs of a target to induce policy change. These costs will only be realized when the sender effectively deters its firms from continuing with illicit transactions with the target, which would otherwise alleviate the impact of sanctions. This suggests that the sender government's willingness and ability to keep its firms from evading sanctions through strong enforcement is critical in determining sanctions success.

### When Will the Sender Impose Sanctions?

A study of sanctions effectiveness will be incomplete without an examination of the conditions under which sanctions are likely to be initiated since sanctions success is closely tied to the sender's decision to impose sanctions. The empirical record shows that states frequently impose trade and investment restrictions for political purposes. In fact, since sanctions are less costly than the use of force, it has become a popular foreign policy instrument. Several studies have shown that when a target engages in some objectionable behavior, states have strong incentives to impose sanctions due to domestic and international pressures "to do something" as well as due to the political and reputational costs that might follow inaction (Cox and Drury 2006; Drezner 1999; Drury 1998; Lektzian and Souva 2003; Lindsay 1986). Others have found that sanctions are more likely to be



imposed when leaders want to demonstrate competence on important occasions such as before elections (Drury 2001, 2000). Studies of regime type have found that democracies are more likely to impose sanctions than non-democracies (Cox and Drury 2006; Lektzian and Souva 2003).

Despite the wealth of studies on sanctions imposition, however, none explicitly acknowledges the fact that both international and domestic audiences rarely follow up with whether states have followed through with sufficient enforcement once sanctions are imposed. In fact, enforcement is difficult to observe directly unless you are the economic agent affected by or participating in the industry affected by sanctions. This lack of transparency provides senders with the opportunity to demonstrate competence or resolve rather cheaply without actually having to allocate sufficient resources towards strong enforcement. This suggests that a sender may frequently impose sanctions when it has symbolic and political value.

When a target makes the last move in the bargaining framework, it is more likely to resist when the sender's firm will continue transactions in a covert manner. This means a target will defy the sender's demands when the sender's firm has a high or low share in its market, or when sender-target transactions are easy to substitute. To recapitulate briefly, if the sender has a dominant market share, its firm will continue exchanges with the target at all costs, rendering sanctions unenforceable. If the sender's firm has minimal market share however, the sender would not need to strongly enforce as firms will withdraw voluntarily. Hence, the target will resist since it knows sanctions cannot harm its economy. When bilateral transactions between the sender and target are difficult to substitute, the firm will be more likely to comply with sanctions, making the target more likely to acquiesce. When sender-target transactions are easy to substitute, the firm will be more likely to evade, making sanctions unenforceable. In this case, the target will resist.

Taken together, a sender will be more likely to impose sanctions in cases where the target will not acquiesce to its sanctions threat, which corresponds to the aforementioned conditions where the firm is more likely to attempt sanctions evasion. Therefore, a sender will be more likely to impose sanctions when its firm either has a high or low market share in the target, or when sender-target

transactions are easy to substitute. From the sender's point of view, sanctions can actually inflict economic losses if its shares are moderate because enforcement is meaningful. Hence, if it desires to lessen economic damage, it will not impose sanctions to begin with. As a result, the following hypotheses predict an interesting situation where senders are more likely to impose sanctions when senders are actually less likely to strongly enforce.

Hypothesis 4a: *Senders are more likely to impose sanctions when its share in the target's market is either high or low.*

Hypothesis 4b: *Senders are more likely to impose sanctions when sender-target transactions are easy to substitute.*

### **Contending Theories of Sanctions Success and Imposition**

Although there are ongoing disagreements about model specification, there is a consensus about some of the factors that increase the probability of sanctions success. Primarily, these can be categorized as domestic-level explanations, signaling explanations and conflict-expectation explanations.<sup>60</sup> First, domestic-level studies have found that when a target is politically unstable or experiencing economic distress, sanctions are more likely to be effective since there is a limit to how much costs the target can tolerate (Hufbauer et al. 1990; Lam 1990). Also, influenced by studies of conflict regarding the democratic peace theory, the sender and target's political institutions or regime type has received much attention. However, the results are mixed. Some studies have found that sanctions are more likely to succeed when the target is more democratic (Cortright and Lopez 2000; Nooruddin 2002), while others have argued that autocratic governments are more likely to concede to sanctions than democracies (Lektzian and Souva 2003). Others have found that sanctions imposed by democracies are more likely to succeed than those imposed by autocracies (Hart 2000). Moreover, sanctions have been claimed to be more effective if the sender and target are engaged in high levels of trade in the pre-sanctions phase, with stronger trade ties giving more bargaining leverage to the sender (Bonetti

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<sup>60</sup> For convenience, I have adopted Drezner's (2001) categorization of the sanctions literature.

1998; Hufbauer et al. 1990). These domestic-level explanations emphasize that the utility of economic sanctions largely depends on the sanctions costs imposed on the target and offers the following testable hypothesis. The more democratic a target, the more it is constrained by domestic public opinion and interest groups that it will be more likely to make concessions, increasing the chance of sanctions success.

Second, advocates of the signaling approach claim that sanctions rarely generate target concessions but effectively signal the use of stronger measures in the future (Baldwin 1985; Pape 1997). States have imperfect information about the preferences, strength or resolve of their opponents, they engage in signaling to generate concessions from each other. For such signals to be credible, they need to create some costs for the sender to distinguish them from bluffing or cheap talk. As economic sanctions are costly for both the sender and target, they are appropriate instruments for signaling military power. Essentially, this approach argues that economic sanctions cannot coerce the target on its own. What follows is the hypothesis that successful coercion of the target will occur when conditions are ripe for extracting concessions from the target, that is, when the balance of power is in favor of the sender relative to the target.

Third, some scholars argue that the possibility of future conflict may increase the initiation of sanctions threats against a target but be less able to bring about policy change (Drezner 1999). The reason is that when states expect to face the same opponent repeatedly over time, they are less likely to acquiesce to their demands should it be perceived as a sign of weakness and undermine its bargaining position in the future. Meanwhile, the anticipation of future disputes increases a state's preference for a coercive strategy. This approach is related to the signaling explanation for sanctions success where scholars have claimed that the use of force rules out the independent impact of sanctions on changing the target's behavior. The testable hypothesis for this approach is that targets will be less likely to concede to the sender if it is a military rival state and the expectation of conflict is high. Thus, sanctions will be less likely to succeed when there is an expectation of future conflict.

Meanwhile, a few studies have separately examined the factors that motivate states to impose sanctions.<sup>61</sup> In a study on U.S. decisions to impose sanctions, Drury (2001) found that high presidential approval ratings, high unemployment rates, high tension levels between the U.S. and the target state, slow rates of conflict escalation, and lower levels of provocation by the target significantly increase the likelihood of U.S. presidents imposing sanctions on targets. In a related study, Drury (2000) identified significant interaction effects between presidential approval ratings and electoral proximity such that when elections are near, high approval ratings increase the chances of sanctions imposition while low approval ratings limit the usage of sanctions. Although these studies are meaningful offering comprehensive statistical analyses on sanctions imposition, the theoretical motivation is quite weak.

Sanctions imposition has been more effectively associated with the target and sender's political institutions. Studies have found that democratic senders are more likely to impose sanctions on non-democratic targets and that democratic states are more likely to impose sanctions in general (Cox and Drury 2006; Lektzian and Souva 2003). In contrast, Nooruddin (2002) finds that democracies are more likely to be targeted with sanctions. Moreover, if the dispute between the sender and target is over a non-security issue that is less salient to the domestic population, anticipation of lower audience costs may create incentives for leaders to initiate sanctions more often. Meanwhile, scholars have found that senders may impose sanctions primarily to appease specific domestic interest groups or to demonstrate that the government cares and is taking action (Dorussen and Mo 2001; Kaempfer and Lowenberg 1988; Lindsay 1986). In all, existing studies have demonstrated that leaders impose sanctions largely on political grounds that to prove one's competence. Testable hypotheses would be that sanctions are more likely to be imposed when the issue involved is less salient to the public and when the target is non-democratic.

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<sup>61</sup> Although I focus on large-N quantitative studies, there are numerous qualitative works available on the issue. I did not include them here since most of the analyses lack empirical content. See Barber (1979), Kaempfer and Lowenberg (1992), Lindsay (1986), Simon (1996), Smith (1995), and Wallenstein (1968).

### **Sanctions Enforcement and Success Revisited: Implications for Multilateral Sanctions**

Thus far, the bargaining framework posited that strong enforcement will increase the chance of sanctions success by deterring the sender's firms from evading sanctions and imposing substantial costs on the target. The framework focused on unilateral sanctions where a single sender implements sanctions on a target. However, it would be naïve to think targets would not adapt to hardship by seeking outside assistance to reduce the impact of sanctions, especially when some targets such as Cuba, North Korea and Iran have managed to live with sanctions for several decades. Therefore, we need to re-examine the relationship between sanctions enforcement and success considering the alternative measures a target adopt to relieve its economy from the negative impact of sanctions.

This brings us back to the issue of substitutability of sender-target transactions, or the ease to which a target can find substitute business partners to continue its transactions with the sender's firms should they comply with sanctions and withdraw. Theoretically, when enforcement levels are high and sender-target transactions are difficult to substitute, the target will be cut off from outside aid and will be more likely to acquiesce to the sender's demand to change its policy. If the sender-target trade or investment relationship is easy to replace, however, the target may continue exchanges with other foreign firms unaffected by the sanctions and sustain its economy. This is particularly a problem for unilateral sanctions where a sender's enforcement efforts will only affect firms within its jurisdiction, possibly placing them at a competitive disadvantage in the target's market relative to foreign firms that are not affected by similar restrictions. If sanctions are imposed unilaterally and there are third party states ready to assist the target in continuing illicit exchanges, the sender firm's risk of transferring market influence to its competitors will be so high that it is reluctant to comply with the sanctions law. Then, recognizing the anticipated costs, the sender may only weakly enforce sanctions and fail to coerce the target. This shows that for sanctions to succeed, the sender needs some credible assurance that alternative business channels will not be available to the target to undermine its enforcement efforts.

This begins to motivate the need for implementing sanctions through a coalition of senders, namely, multilateral sanctions.<sup>62</sup> Ideally, when more than one sender collectively imposes sanctions and enforces restrictions on their firms' transactions with a common target, the pool of foreign firms that the target can partner with to substitute transactions with the sender will decrease. This will reduce the outside options available to the target and render sanctions more damaging, increasing the chance of successful coercion. However, the sender's enforcement dilemma identified in a unilateral setting is merely a prelude to a more complex enforcement problem in a multilateral context. When several senders impose sanctions on a target as a coalition, since there is no way to "lock-in" their commitment to strongly enforce, each sender's firm may continue to perceive each other as competitors in the target's market. Because sender governments identify with their firms' economic interests, the threat of being replaced by competing firms will affect the senders' decision to enforce sanctions. For instance, competition and the pending threat of losing market influence may incentivize senders with relatively high stakes to weakly enforce and allow their firms to take advantage of lucrative trade and investment opportunities that open up should others be compelled to exit the market. In turn, the remaining coalition members will be discouraged from strongly enforcing sanctions, either for fear of lagging behind in competition and/or anticipating that the target will not acquiesce, which will undermine the impact of sanctions as a whole. This exacerbates the collective action problem and the free-riding of weakly committed states that are often associated with spoiling international cooperation.<sup>63</sup>

Parallel to the unilateral sanctions context, the implication is that while multiple senders may agree to jointly impose economic sanctions, their willingness to actually enforce these laws on their firms may vary. Symbolic and political reasons may drive senders to impose sanctions collectively,

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<sup>62</sup> The inability to remove third parties that continue to assist the target has been viewed as one of the main reasons unilateral sanctions fail, creating a rationale for implementing sanctions multilaterally. Recent discussions on the topic can be found in Early (2009, 2011), McLean and Whang (2012).

<sup>63</sup> A collective action problem occurs when states can only achieve their goals through joint action, while each state has incentives to defect from these joint efforts. On incentives to free-ride, see Kaempfer and Lowenberg (1998) and Martin (1992).

yet the degree to which they enforce will be determined by how each sender balances its economic and political interests. Specifically, consider three broad situations under which senders face an enforcement problem after imposing sanctions multilaterally. First, the senders may be genuinely interested in coercing a target to change its objectionable behavior, but remain reluctant to commit to enforcement should any of the others defect and only weakly enforce. What follows is that in order to secure each sender's commitment to strongly enforce sanctions and uphold the impact of multilateral sanctions, they need to be assured that the remaining coalition members will not defect in kind. Second, there may be one sender with a strong interest in coercing the target, while the others are reluctant to cooperate unconditionally. If this is the case, the primary sender needs to gain the support of fellow senders by making a credible commitment to strongly enforce sanctions. Third, none of the senders may want to cooperate unconditionally, such as in the Prisoners' Dilemma game. Left as they are, no sender will commit to strongly enforcing sanctions, making themselves all worse off than they would have been if they had all strongly enforced and coerced the target. In this instance, there needs to be a credible guarantee that the senders who fail to strongly enforce sanctions on their firms will be punished, so that they are deterred from reneging on multilateral sanctions efforts.

There is a body of theoretical literature on international cooperation, which establishes the proposition that institutions influence state decisions and offers various explanations of how they serve as a mechanism to overcome collective action problems.<sup>64</sup> Building on insights from these works, I argue that international institutions can facilitate sanctions enforcement in a multilateral sanctions context in the following ways. First, institutions can provide the reassurance necessary for senders to enforce sanctions by providing quality information about each state's preferences and their actions. Once it is made clear that the coalition members are serious about pursuing change in the target, the senders will be willing to enforce sanctions to accomplish their political goal. Second, institutions can assist senders in monitoring each other's behavior. It is often the case that senders

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<sup>64</sup> See Robert Keohane (1984, 1988), Oye (1986), pp. 1-24. For a direct application to the topic of economic sanctions, see Martin (1992).

breach rules knowing there is a low chance they will be caught. Third, though rarely used, some institutions like the United Nations even have enforcement powers that can be used against coalition members that renege on their commitments. This allows coalition members to punish those who defect. Fourth, institutions also provide a common arena where states can engage in dialogue and reach decisions, set standards, and exchange information and thus reduce the transaction costs. This will facilitate how senders pool their resources to police each other's firms that attempt to evade sanctions, which will help save individual enforcement costs while making it easier to prosecute and punish them in a consistent manner. Therefore, when multilateral sanctions are imposed with support from an international institution, senders will be more likely to cooperate on enforcing sanctions due to the informational and enforcement mechanisms, thus increasing the chance of sanctions success.

*Hypothesis 5: When sanctions are imposed, they are more likely to succeed with institutional support than without.*

## **Summary**

Scholars and policy makers alike have made assessments of sanctions policies by observing whether or not the target has changed its policy, the general hypothesis being that increasing the target's potential sanctions costs will lead to significant concessions. However, these state level analyses do not account for whether the sanctions laws were enforced after they were imposed, often resulting in negative evaluations of the policy instrument. The consideration of firms and their strategic relationship with sender governments allows us to associate a higher probability of sanctions success with stronger enforcement rather than assert a direct linear relationship between sanctions success and higher sanctions costs. The bargaining framework set forth in this chapter demonstrates that sanctions are more likely to be imposed when they are less likely to be strongly enforced, which implies that sanctions will only succeed in the few instances where senders willingly impose and enforce sanctions with a goal to make them work. Two important factors, the sender's market share in the



target and substitutability of sender-target transactions, affect firm decisions to evade sanctions and the sender's decision to strongly enforce sanctions, which ultimately influences sanctions success.

Table 3.2: Summary of Hypotheses

Dependent Variable	Hypotheses
Firm Behavior	<p>H1a: The sender's firm is more likely to evade sanctions the expected level of enforcement is low.</p> <p>H1b: The sender's firm is more likely to evade sanctions if its share in the target's market is high.</p> <p>H1c: The sender's firm is more likely to evade sanctions if its transactions with the target are easy to substitute.</p>
Strong Enforcement and Success	<p>H2a: Senders are more likely to strongly enforce sanctions when the sender firm's share in the target's market is moderate and less likely to strongly enforce when its share is either low or high.</p> <p>H2b: Sanctions are more likely to succeed in coercing the target when the sender firm's share in the target's market is moderate and less likely to succeed when its share is either low or high.</p> <p>H3a: Senders are more likely to to strongly enforce sanctions when the sender's transactions with the target are difficult to substitute.</p> <p>H3b: Sanctions are more likely to succeed when the sender's transactions with the target are difficult to substitute.</p>
Sanctions Imposition	<p>H4a: Senders are more likely to impose sanctions when its share in the target's market is either high or low.</p> <p>H4b: Senders are more likely to impose sanctions when sender-target transactions are easy to substitute.</p>
Multilateral Sanctions Success	<p>H5: When sanctions are imposed, they are more likely to succeed with institutional support than without.</p>

## Chapter 4. A Case Illustration of U.S. Sanctions Against China

Do firms evade sanctions as predicted by the theory? Do senders strongly enforce sanctions as predicted? This chapter provides a detailed illustration of the case of U.S. sanctions against China as a preliminary study to determine whether firms and senders respond to and implement sanctions as predicted by the bargaining and enforcement framework of Chapter 3.

Despite the need for a systematic, large-N treatment of the theoretical linkage between sanctions enforcement and sanctions success, the approach has some limitations on its own. First, the statistical tests cannot confirm any causal relationship between the independent variables and dependent variables. Second, even the richest measure for sanctions success cannot inform us whether a firm changed its behavior because of strong enforcement or due to other external factors. This becomes more problematic when the key independent variables are national aggregate measures of firm responses to sanctions, as it creates a discrepancy in the unit of analysis in examining the relationship between sanctions success and firm behavior. Moreover, not only is large-N analysis unable to directly capture the changes in firm responses, it is also limited in gaining a good sense of the longer-term process that links varying levels of enforcement with changes in firm behavior. Although some sanctions cases last for years and even several decades, the existing sanctions data have aggregated information at the state-level with variables that do not reflect the changes that unfold over time. Thus, the details of exactly when and how sanctions are strongly enforced and when firms change their behavior are easily lost in the aggregation process. For these reasons, this chapter

was included as a plausibility probe of the theory to provide a foundation for the quantitative analyses in Chapter 5.

Specifically, I examine U.S. sanctions regarding high-technology transfers and satellite exports during 1988-2005. I do this in two parts. Part 1 examines whether firms attempt to evade sanctions as predicted by the theory. It demonstrates that the degree to which a sender is expected to enforce sanctions influences its firm's decision to comply with its sanctions policy. When a firm anticipates weak enforcement and thus low levels of punishment, it is more likely to continue transactions with the target illicitly. However, when senders allocate a substantial amount of resources towards policing and prosecuting sanctions evasion attempts, it raises the firm's expected costs of circumventing sanctions and increases the probability of compliance. This begins to offer guidance as to what senders can do, if they so desire, to make sanctions policy more effective.

Part 2 investigates whether or not senders strongly enforce sanctions as predicted by the theory and to what extent this affects firm behavior. In all, the case illuminates the strategic incentives that motivate firms to evade sanctions when the risk of punishment is low and to comply with the sanctions law when enforcement is strong. Also demonstrating that firms respond positively to strong punishment measures, it suggests that enforcement is critical for effectively inducing a target to change its policy.

## **Method**

The case of U.S. sanctions on China regarding high-technology transfers and satellite exports was chosen as follows. The Threat and Imposition of Economic Sanctions (TIES) dataset includes 888 cases where a sender either threatened or imposed sanctions on a target state. Among these, I focused on the cases where sanctions were actually imposed as laws need to be intact for firms to attempt evasion. A sanctions case can be seen as larger collections of sanctions episodes between *state* actors. Thus, sender interactions with their firms are more likely to be part of a smaller sanctions episode rather than a case, which requires a closer examination of the documented case summaries and news

articles that report firm evasion activities. Based on the start and end dates given for each case, I utilized news search engines such as Lexis-Nexis and Google news alerts to identify allegations of firm evasion. The search was conducted as generally as possible, not focusing on a particular industry or sector, as the theory does not require such refinement. There were numerous instances where firms were reported to have evaded sanctions laws to further their economic interests, including Iran vs. Israel, U.S. vs. Myanmar and so forth. However, information was lacking on how the sender government specifically dealt with these evasion attempts, and more importantly, how strongly the sender had enforced sanctions prior to such firm behavior. The sampled case was part of a broader U.S. effort to deter China from proliferation activities that threatened international peace and security. The narrow concentration on export restrictions is useful in that national and corporate interests tend to diverge when sanctions involve “dual use” goods or technologies with commercial as well as military significance. Thus, it becomes more apparent when the sender government engages in activities to “protect” its firms’ economic interests.

Part 1 sets out to illustrate the plausibility of the predictions that the sender’s firm is more likely to evade sanctions if its stake in the target’s market is high (H1a) and the expected enforcement level is low (H1b). The year 1998 is identified as a turning point for U.S. enforcement of sanctions. In brief, two major U.S. satellite manufacturing firms were reported to have conveyed sensitive information to Chinese firms during the mid-1990s. Federal investigations began in 1998 and lasted almost 3 years, which resulted in penalizing the firms monetarily for evading sanctions. In the years that followed, the affected firms discontinued their illicit transactions with China. Due to caution that “causal inferences about the impact of discrete events can be risky if one does not have an extended series of observations (Campbell and Stanley 1963, 20-21),” I monitor changes in firm behavior across 17 years.

Part 2 aims to demonstrate that senders are more likely to strongly enforce sanctions when its stake is moderate in the target’s market (H2a) and when the sender’s transactions with the target are difficult to substitute (H3a). To show that these predictions are plausible, I re-evaluate the case of U.S.

sanctions against China, underlining the change in market conditions that preceded the U.S. government's decision to conduct federal investigations and impose penalties on its firms. Specifically, I find that the sender's stake has decreased from high to moderate levels and that sender-target transactions are difficult to substitute, which are consistent with the conditions that induce strong enforcement.

Advocates of the case study method emphasize the importance of setting the objective and goal of the study, developing a research strategy and selecting the appropriate cases (George and Bennett 2005, pp. 73-88). I conduct an easy test by focusing on a single case that exhibits variation in the sender's level of enforcement with all other control variables held constant. Using strong enforcement of sanctions in 1998 as the treatment, I conduct a controlled comparison of firm behavior by dividing the case into "before" and "after" segments. This can control for a host of factors and can isolate the difference in firm behavior as due to the influence of the variance in enforcement levels (George and Bennett 2005, 80-81). In Part 1, the main goal is to demonstrate that strong enforcement induces firm compliance to sanctions. Prior to 1998, when firm stakes were high and enforcement was weak, U.S. firms attempted sanctions evasion. After 1998, however, as enforcement strengthened and penalties imposed, the firms were deterred from continuing illicit transactions with the target. The objective of Part 2 is to show that the sender varies enforcement levels in consideration of both economic and political interests. That is, the U.S. government only weakly enforced sanctions before 1998 when firm stakes were high and anticipated economic losses were greater than the expected political gains. However, as market conditions changed and reduced firm stakes to moderate levels in the late 1990s, the U.S. began to increase enforcement levels against its firms.

The case study method is appropriate to accomplish these goals for two specific reasons. First, it is extremely difficult to observe and quantify the varying levels of enforcement across sanctions cases systematically. Few states have established an independent enforcement agency, such as the American Office of Foreign Assets Control (OFAC) or the Canadian Trade Controls and Technical

Barriers Bureau (TID).<sup>65</sup> More likely, enforcement decisions are embedded in national policy making processes that involve various government departments and branches, are run on ad hoc task force basis, and are not readily transparent to third parties.<sup>66</sup> In all, this makes it very difficult to collect information on enforcement and make systematic comparisons across senders.

Second, it is difficult to construct an indicator for firm evasion. Not all evasion attempts are valid until they are detected and prosecuted by the government. Media reports, from which investigations usually begin, need to be verified before taken as truth and this procedure take time. Also, these reports depend on a selection of major western media sources and the coverage is somewhat biased towards U.S. firms and firms dealing with a select few target states, Iran and North Korea to name a few, which also affects its credibility. Although it is possible to use indirect measures such as changes in trade flows, changes in FDI and firm profits instead, the operationalization would be unreliable since it is unlikely that illicit transactions are perfectly reported in public firm data if at all.

The case of U.S. sanctions on China regarding high-technology transfers and satellite exports has some weaknesses as well as merits. The main strength of the case is that there is a fair amount of information available on enforcement by the sender and it is well-documented. For instance, the federal investigation of 1998 produced detailed analyses by the Senate task force and the House in

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<sup>65</sup> The Trade Controls and Technical Barriers Bureau (TID) is responsible for administering the Export and Import Permits Act (EIPA), which was first enacted in 1947. The EIPA makes provision for prosecution and penalties for contravention of the EIPA or its regulations. Both firms and their officers are potentially liable. Investigators from Canada Border Services Agency and the Royal Canadian Mounted Police enforce the EIPA. Where offences are suspected, Border Services Officers may detain or seize goods; as well, forfeiture action may be taken. Investigations may lead to charges, prosecutions, fines and/or incarceration. Further information about TID is available at [http://www.international.gc.ca/controls-controles/about-a\\_propos/index.aspx?view=d](http://www.international.gc.ca/controls-controles/about-a_propos/index.aspx?view=d).

<sup>66</sup> According to the Report of the Minister of Foreign Affairs Respecting Operations Under the Export and Import Permits Act of 2010, the Canada Border Services Agency referred 389 detentions of export shipments to the Department of Foreign Affairs and International Trade, as well as a further 2 post-export queries, to determine the applicability of export controls. Canada Border Services Agency initiated investigations on 3 cases of suspected violations of the Export and Import Permits Act. In 2009, the Canada Border Services Agency referred 293 detentions of export shipments to the Department of Foreign Affairs and International Trade, as well as a further 20 post-export queries, to determine the applicability of export controls. Canada Border Services Agency initiated investigations on 30 cases of suspected violations of the Export and Import Permits Act. However, the details for the investigations for either 2009 or 2010 were not publicly available.

1999, utilizing both first-hand materials submitted by the alleged firms as well as classified information. Although the House report was met with much criticism about the accuracy of the evidence and the level of speculation regarding China's stealing and usage of U.S. technology to advance its own military system, the written analyses from a wide range of experts as well as media reports from multiple newspapers enabled the researcher to parse out the important facts and evaluate the situation independently.<sup>67</sup> In all, the documents available allows us to understand how firms act on their commercial interests while the sender government experiences a dilemma in striking a balance between preserving national security and protecting economic interests.

Further, I maintain that the case of U.S. sanctions on satellite exports to China is appropriate for the following reasons. First, the U.S. is a prominent actor in the universe of sanctions cases. In fact, the U.S. is a sender in more than two-thirds of the sanctions imposed during 1971-2000. Since the emphasis of this study is to understand how senders make decisions regarding sanctions, it is meaningful to deal with a case where the sender is an important political actor. Second, the value of the industry is high for the sender, which raises the overall stakes involved. That is, the satellite industry is closely related to maintaining high levels of intelligence and is considered a matter of national prestige, which raises the baseline interest level for the U.S. government. This should warrant more than less government involvement, which creates a suitable environment to observe interactions between the sender and its firms. Third, market conditions are easy to read for the satellite industry. Due to the limited number of states with satellite manufacturing capabilities in the late 1990s, it is straightforward to identify firm stakes and competition in China's market. It is also important that the U.S. imposed sanctions unilaterally on China, which removes other confounding factors that may complicate a sender's decision to enforce sanctions.

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<sup>67</sup> The Center for International Security and Cooperation (CISAC) at Stanford University has been involved in the study of the international role of nuclear weapons, nuclear arms control, the role of export controls on high technology items in national security, and the politics and external policy of China for a number of years. Four contributors with long experience in the topics taken up in the report produced an assessment of statements made in the report. These include Alastair Iain Johnston, W. K. H. Panofsky, Marco Di Capua, and Lewis R. Franklin. See Johnston et al. (1999), "The Cox Committee Report: An Assessment."



A potential weakness of the case is that the target of sanctions is China, with its military and economic potential may have invited national security concerns as well as economic considerations for the U.S. government to vary sanctions enforcement levels. According to realist theory that centers on the importance of power politics, the rapid growth of China in the late 1990s would have posed as a significant threat to the U.S. such that it may have motivated strong enforcement to induce changes in China that would make it easier to deal with. In order to cross-examine this alternative explanation for the U.S. taking a hard line on its firms, we need to examine the historical relationship between the U.S. and China in perspective.

At the outset of the post-Cold War period, China unmistakably posed the most credible threat to the United States in the global state system. However, the two states had begun to develop a pragmatic relationship as early as during the Nixon administration, which was successfully maintained throughout the 1980s. For example, in the mid-1970s, Ronald Reagan campaigned by attacking the detente policy with the Soviet Union but did not criticize rapprochement with China. By the mid-1980s, the U.S. and China projected a coordinated defense against the Soviet Union with a shared understanding about its weakness. As Soviet power declined, China gained a more flexible stance and began to solidify its position in the Third World and exercise its powers on a global level. From China's viewpoint, as long as the Soviet Union was a nuclear superpower and relations with it were precarious, it had no incentive to undo its cooperative ties with the United States. In effect, China and the U.S. were no longer strategic partners balancing against a common existential threat but partners of convenience on selected issues on which their interests aligned (Kissinger 2012, 392-394).

There is evidence of this partnership in the foreign policy postures of president George H. W. Bush, Bill Clinton and his successor, George W. Bush. Despite the stability reached in the 1970s, China's relationship with the U.S. experienced a major setback with the Tiananmen massacre in 1989. Pressure to impose sanctions to alter China's domestic institutions and encourage human rights practices intensified and president George H. W. Bush was forced to take a strong stand. However,

president Bush was hesitant about the long-lasting effects of sanctions and wary about antagonizing China since he had witnessed how its government had cooperated with the U.S. on various security issues throughout the Cold War period (Kissinger 2010, 414-425). The first Bush administration thus softened some of the sanctions imposed by Congress and continued to pursue engagement policies.

The Clinton administration and the second Bush administration also established a closer relationship with China than they had campaigned for. Although candidate Clinton criticized the former Bush administration for being lenient on China's record of human rights abuses, once elected, president Clinton strongly defended his policy of "constructive engagement" that promoted economic and political ties. At the same time, the administration pressed for democracy, open markets and greater respect for human rights, calling it the best chance to secure U.S. interest and to advance China's. President Clinton argued that China's isolation was potentially more dangerous and refused to impose strict trade sanctions to alter China's human rights policies. Likewise, candidate Bush criticized Clinton's dealing with China and claimed he would treat China as a "strategic competitor" rather than a "strategic partner."<sup>68</sup> However, trade with China became increasingly important during his presidency and cooperation with China peaked after the September 11 terrorist attacks in 2001. In fact, both the Clinton and Bush administrations based their policies on the premise that the U.S. would be better able to maintain a peaceful relationship with a democratic China. Making China wealthier by encouraging trade and foreign investment was considered vital in moving the society closer toward democratization. These cooperative policies remained constant throughout the 1990s to the early 2000s, which is the time frame under examination, and thus has the effect of ruling out national security concerns as an alternative explanation to strong enforcement after 1998.

Another possible weakness lies in illustrating a single case, which lacks generalizability compared to multicase analyses. In order to enable broader interpretation, I complement Part 2 of this chapter in two ways. First, I uncover that the U.S. government did not conduct investigations on

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<sup>68</sup> Blitzer, Wolf, 1997. "Clinton Defends 'Constructive Engagement' of China." All Politics, October 24. <http://edition.cnn.com/ALLPOLITICS/1997/10/24/clinton.china>.

American firms working with Russia, another state targeted with its sanctions, in developing satellites as it did against the same firms working with China. The firms, Lockheed Martin, Loral Inc. and Boeing Co., worked closely with both Chinese and Russian firms in the satellite industry during the same time period. Interestingly, Congress largely ignored the possibility of high technology transfers to Russia and entities of the former Soviet Union and did not raise enforcement levels. Second, I investigate why the U.S. government strongly enforced sanctions on its firms doing business in the satellite industry but not on the same firms working in the automobile industry, both partnering with the same Chinese firms. As the theory predicted, while moderate stakes and low substitutability seem to have induced strong enforcement against satellite manufacturing firms, relatively low stakes and high substitutability made the U.S. government reluctant to take a hard line on its automobile manufacturing firms.

### **U.S. National Security Concerns for High-Technology Transfers to China**

Economic sanctions were often sought by the U.S. government to coerce China to change its domestic as well as international behavior. Specifically, the U.S. imposed sanctions in two distinct areas: First, following the Tiananmen crackdown, the U.S. demanded improvement in human rights conditions and threatened to deny China Most Favored Nation (MFN) status and to prohibit access to the U.S. market otherwise. However, the frequent threats made were rarely followed by actions, and those laws imposed were subsequently waived. Thus, the few sanctions imposed were affected by lack of credibility. Perhaps this is one of the reasons why the treatment of political dissidents in China has not improved much to this day.

Second, in order to curb China's involvement in missile and nuclear proliferation activities, the U.S. imposed restrictions on technology transfers that affected a range of industries, including aviation, automobiles and electronics since 1991. Despite frequent Presidential waivers, sanctions in this issue area were perceived to be relatively successful (Ross 1998). However, quantitative assessments have been mixed, depending on how one defines a sanctions case and the meaning of

sanctions success. Due to similar reasons, U.S. sanctions on China for non-proliferation have been evaluated as an ongoing and hardly successful in existing sanctions databases.<sup>69</sup>

With the end of World War II, only U.S. based firms had the resources to develop foreign sources of supply and venture into foreign markets, and with a substantial increase in demand for U.S. products worldwide, these firms were able to invest abroad aggressively. During 1950-1965, U.S. based multinational firms had increased the number of their manufacturing subsidiaries in Europe nearly fourfold. Although there was a downturn in the 1970s where governments in many developing countries expropriated foreign-owned businesses, particularly in the oil industry, American firms made way into the markets of East Asia and Latin America in the 1990s. By this time, multinational firms in general became recognized as bearers of technology and were welcomed and sought after for their capital and managerial skills (Vernon 1971).

Meanwhile, making a debut in foreign markets was not without concerns about uncertainty, especially in non-market, transitioning economies like China. Despite the general laissez-fair approach to U.S. business and trade abroad, there were numerous domestic debates about whether or not certain exports to China should be permitted, particularly goods and services with a risk of transferring of high technology. The U.S. government identified “three areas of global trade and technology transfer that are occurring with increasing frequency and that have the potential for broad national security or economic impact.” These included “sales and contracts with foreign buyers imposing conditions leading to technology transfer, joint ventures with foreign partners involving technology sharing and next-generation development, and foreign investments in U.S. industry that create technology transfer opportunities may raise either economic or national security concerns.”<sup>70</sup>

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<sup>69</sup> For example, Hufbauer et al. (1990; 2007) evaluate this case as a failure. The Threat and Imposition of Economic Sanctions (TIES) database of Morgan et al. (1999) only includes this case as a threat and records no imposition.

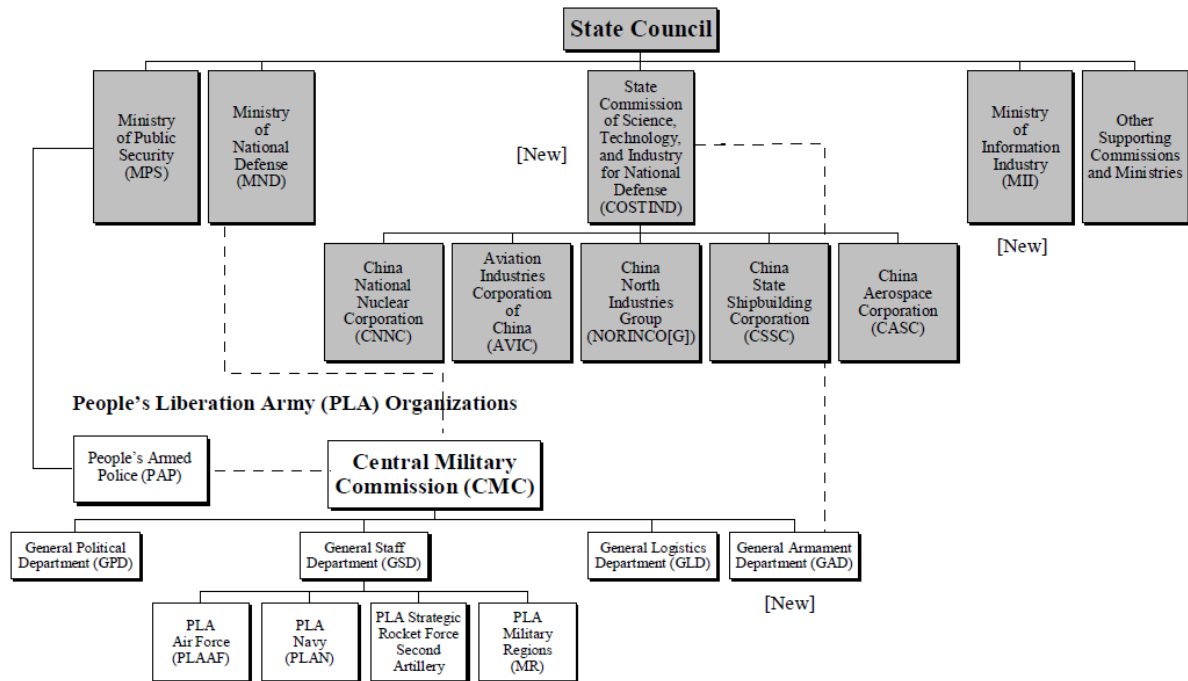
<sup>70</sup> Walsh, Kathleen A. and Karen A. Swasey. “U.S. Commercial Technology Transfers to the People’s Republic of China.” Office of Strategic Industries and Economic Security, Bureau of Export Administration and FDI International. January 1999 (a.k.a. BEA Report 1999), part II.

The U.S. was cautious about technology transfers to China since China's strategies to increase high-technology transfers was closely related to its military and posed a potential security threat. China's strategies to modernize its military and industrial sectors were based on advances in science and technology. Despite the separation between the defense industrial complex and military forces (the People's Liberation Army), the former under the authority of the China's State Council and the latter under the authority of the Central Military Commission, the bureaucratic structure provided opportunities for civilian high technology to be converted to military use (Figure 4.1). For instance, the Commission on Science, Technology and Industry for National Defense (COSTIND) was created in 1982 to coordinate and separate policies and resources related to military and civilian enterprises. In March 1998, however, COSTIND was placed under the leadership of the State Council to resume with defense-related research and procurement. Its military responsibilities, such as weapons testing and development, were assigned to the General Armaments Division (GAD), which was a newly established bureau under the Central Military Commission.<sup>71</sup>

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<sup>71</sup> Ibid.

Figure 4.1: China's International Defense-Industrial Organizations



Source: Adapted from Defense Intelligence Agency Reference Document DI-1921-60-98

The U.S. was particularly sensitive about satellite exports due to the possibility that the transfer of related technologies and methodologies to China could lead to missile development and proliferation. First, the technology used to produce satellites was considered to be dual-use so that technology transfers into civilian areas could be used in the manufacturing of missile components. Since the People's Liberation Army (PLA) had exercised control over satellite launches since 1998, having some contact with the military was inevitable. Second, the same Chinese aerospace organizations have been involved in both satellite and missile development and exports, such as the China Great Wall Industry Corporation (CGWIC) that has been China's commercial space launch company since 1986 (See Table 4.1). In fact, CGWIC was a subsidiary of China Aerospace Corporation, formerly known as the Ministry of Aerospace, and sister company to the China National Precision Machinery Import and Export Corporation, which produces China's CSS-4 Intercontinental

Ballistic Missile (ICBM).<sup>72</sup> Third, foreign aerospace joint-ventures had been typically established with or located near China's military aerospace factories such as Xian, Shenyang, and Chengdu Aircraft Factories in addition to Shanghai. For example, the Xian Aircraft Company manufactures China's H-6 bomber and various civilian passenger aircrafts as well as parts for Boeing.<sup>73</sup> Due to proximity, the risk of technology transfers was high.

The business environment in China substantiated the concerns of the U.S. government. After Deng Xiaoping's tour of the southern coastal areas in January 1992, China officially opened its doors to foreign investment and adopted a series of incentive programs offering business opportunities for both foreign and domestic investors in the Chinese market. Specifically, with a goal to advance domestic technological capabilities, the Chinese government implemented policies that channeled foreign investment into select regions and industrial sectors. First, China was divided into five foreign investment "zones" which differed in district, incentive structures, governing regulations, as well as preferred industries. These include Special Economic Zones (SEZs, established in 1979-1980), Economic and Trade Development Zones (ETDZs, 1984-1985), Free-Trade Zones (FTZs, 1992), High-Technology Development Zones (HTDZs, 1995), and Special Administrative Region (SAR: Hong Kong, 1997).<sup>74</sup>

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<sup>72</sup> U.S. Senate 1999, p. 2.

<sup>73</sup> BEA Report 1999, p. 57.

<sup>74</sup> SEZs were located in southern coastal areas such as Fujian and Guangdong and functioned as specific customs areas that gave preferential treatment to foreign firms in terms of lower duties and tax breaks. When SEZs failed to attract high-technology industries early on, the Chinese government resolved to use strategies to bring foreign investment into these specific areas. All HTDZs, located all over China, incorporated the "three-in-one development system," which required them to have a university based research center, an innovation center, and partnership with a commercial firm to provide product manufacturing and marketing. BEA Report 1999, p. 17.

Table 4.1: Sanctions Targeting Chinese Firms for Weapons Proliferation

Entity (or subsidiary)	Reason: Statutes	Effective Dates
China Great Wall Industry Corporation	Missile Proliferation: §73(a)(2)(A), Arms Export Control Act §11B(b)(1)(B)(i), Export Administration Act (Category II items in MTCR Annex to Pakistan)	June 25, 1991  waived on March 23, 1992
China Great Wall Industry Corporation	Missile Proliferation: §73(a)(2)(A), Arms Export Control Act §11B(b)(1)(B)(i), Export Administration Act (Category II items in MTCR Annex to Pakistan)	August 24, 1993  waived on November 1, 1994
China Great Wall Industry Corporation	Weapons Proliferation: §3, Iran Nonproliferation Act  (unspecified transfers to Iran controlled under multilateral export control lists or having the potential to make a material contribution to WMD or cruise or ballistic missiles)	September 23, 2004 for two years
China Great Wall Industry Corporation	Weapons Proliferation: §3, Iran Nonproliferation Act  (unspecified transfers to Iran controlled under multilateral export control lists or having the potential to make a material contribution to WMD or cruise or ballistic missiles)	December 27, 2004 for two years
China Great Wall Industry Corporation,  GW Aerospace (a US office of CGWIC)	Missile Proliferation:  Executive Order 13382  (transfers to Iran's military and other organizations of missile and dual-use components, including items controlled by the MTCR)	June 13, 2006  On June 19, 2008, sanctions lifted against CGWIC and GW Aerospace

Source: CRS Report. China and Proliferation of Weapons of Mass Destruction and Missiles: Policy Issues by Shirley A. Kan, February 3, 2011.



Second, the Chinese government imposed laws that emphasized industry-specific investment and high-technology imports. For example, three legal documents issued by China's State Council include certain requirements for foreign firms to gain access to the Chinese market.

- Detailed Rules for Implementation of Regulations on Administration of Technology Import Contracts (January 1988) laid out the terms under which foreign firms would enter into a joint venture agreement with a Chinese local firm. It suggested several ways in which foreign investors would be treated differently from domestic Chinese investors.
- Provisional Regulations on Guiding the Direction of Foreign Investment (Issued June 1995, Implemented October 1996) spelled out for the first time which sectors would permit foreign investment. It was explicitly noted that technology transfers from foreign firms were required for market access.
- Catalogue for Guiding Foreign Investment in Industries (Issued with Provisional Regulations in June 1995) was controversial in that it officially distinguished foreign investment into categories of "encouraged," "restricted," "permitted," or "prohibited."

These laws show that foreign firms were required to partner with local firms, which would lead them to provide a large portion of the start-up costs due to caps on local contributions as well as to compensate for any losses that occurred, without being able to take away any extra benefits created by the joint business. Until the mid-1990s, joint ventures were not only required for foreign firms to enter the China's market but significant benefits were also exclusively guaranteed to firms that employed local suppliers in terms of increased sales. Those firms that did not follow the requirement were penalized to the extent that it affected their overall performance.

Table 4.2: Chinese Law Governing Domestic vs. Foreign Technology Transfers

	Detailed Rules governing Foreign Entities	Technology Contract Law governing Domestic Entities
Ownership Rights	Sole ownership of newly developed technology is given to Chinese enterprise; foreign party is required to pay fee for technology not directly developed by foreign licensor.	Ownership of technology is the prerogative of the parties involved with “full utilization” of technological developments by all other parties.
Utilization Rights	Includes a list of nine “unreasonable restrictions” that foreign parties are prohibited from imposing on technology transfer contracts with Chinese parties.	No restrictions listed.
Performance Guarantees & Feasibility Studies	Performance guarantees are required by foreign licensor; feasibility studies are essential for contract approval.	No technical performance guarantee or feasibility study necessary, the latter being discretionary.
Protection of Trade Secrets	“During the process of negotiation and contract approval, the intended licensee has no obligation to keep the foreign technology confidential or refrain from using it unless a separate confidentiality agreement is signed.” Work units, but not employees, are potentially liable for misappropriation of proprietary information. Technology licenses usually expire after 5-10 years or at the end of a contract, allowing Chinese partners free and unrestricted use of technology.	Provides two forms of intellectual property protection: confidentiality throughout negotiations and contract approval process (regardless of outcome); and confidentiality of proprietary information acquired by either employees or work units, both of whom are liable.

Source: Erin Sullivan, Esq., “Chinese Laws and Policy Concerning Science and Technology Exchange,” Official Memorandum, U.S. Department of Commerce, Technology Administration, Office of Technology Policy, July 12, 1995.

Table 4.3: The Provisional Regulations on Guiding the Direction of Foreign Investment

	Encouraged	Restricted	Prohibited	Permitted
General	Foreign investment is encouraged in areas where china is seeking new technologies, higher quality products, assistance in building infrastructure, and more efficient use of domestic resources and raw materials, especially in Western/central China.	Foreign investment is restricted in areas where China has developed a degree of domestic capability and capacity) usually via previously imported technology), and areas where China is experimenting with investment liberalization or attempting to control foreign investment.	Foreign investment is prohibited in areas where a domestic Chinese industry or state monopoly exists or foreign investment would be potentially disruptive or threatening in some manner.	None specified
Industry	Aerospace (civilian satellite manufacturing, civilian aircraft and engine production, air traffic control equipment) Transportation, Energy, Electronics, Agriculture/Environment	Transportation, Energy, Electronics, Retail/Wholesale, Financial Services, Raw materials	Public utility, Media, Military weaponry, Air traffic control, Financial/futures trade, etc	Generally all areas not specifically listed in other categories
Treatment	Foreign-invested projects will receive unspecified preferential treatment (e.g. tax breaks)	Foreign investment is permitted only in areas specifically approved under China's industrial policies or state investment plans; other restrictions may also apply (i.e. limited monetary contribution by Chinese partner in venture, fixed term investment, longer or higher-level approval process etc.)	No joint ventures or wholly foreign enterprises are permitted.	Foreign invested projects are allowed.

Sources: the Economist Intelligence Unit Limited, February 1996, pp. 10, 17. Ministry of Science & Technology, China Science & Technology Newsletter (1997, 1998).

Selling products in the Chinese market was also designed to be difficult by high tariffs and various non-tariff barriers as well as export quotas. However, American firms rarely complained publicly, even privately, about the difficulties in doing business with their Chinese counterparts. Firms continued to claim that maintaining a foothold in the Chinese market was their top priority,

even if it meant not making any immediate profits. Firm surveys often reported that “one cannot *not* be in China,” should competitors beat them to getting a foothold.<sup>75</sup> This was because the potential of China’s populous market allowed Chinese officials to play foreign competitors against one another when they placed bids for joint-venture contracts and government-funded infrastructure projects.

### **The Evolution of U.S. Policy on Satellite Launches on Chinese Space Launch Vehicles**

Traditional U.S. policy for satellite development during the Cold War aimed to impede the growth of foreign space capabilities by limiting access to U.S. technology and services, where it enjoyed near-monopoly status. Primarily, the U.S. guarded its satellite exports to preserve its military advantage. However, under agreements negotiated by the Bush and Clinton administrations, American firms began to take their satellites to China and Russia for launching into orbit in the late 1980s. Until the failure of the Challenger shuttle launch in January 1986, U.S. policy was to launch most of its military and commercial satellites from shuttles, not from ground-launch rockets. When the U.S. shuttle program was reduced significantly in the years that followed, however, the Reagan administration revised the space launch policy from primary dependence on the shuttle to a “mixed fleet” of launch vehicles.<sup>76</sup> This created a demand for foreign satellite launch services. One option was to use the Ariane rockets of France. However this was not attractive since it had failed to launch a U.S. satellite on several accounts. Another option was to work with the Russians or the Chinese, who began to offer commercial launch services at affordable prices as Cold War tensions began to wane.

The China option was particularly popular among American firms, as they offered launch rates that were much cheaper than other Western nations and had a successful record of launching its own satellites in the past. However, there was a risk of technology transfer that may enhance Chinese missile technology. Although the Chinese threat was less than that of Russia, it still had the ability to

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<sup>75</sup> BEA Report 1999, p. 44.

<sup>76</sup> U.S. Senate 1999, p. 2.

attack American targets and civilians. Against these national security concerns, the U.S. government supported the decision to work with the foreign services, largely due to economic reasons. First, the U.S. government recognized that space launching would inevitably become a global business and that its firms would be better off maintaining their dominance in *building* satellites while delegating launching services. The risk of transferring technology was minimal. According to Brent Scowcroft, President Bush's national security advisor, "The launcher is just a truck... we could control adequately any intelligence benefits [the Chinese] got from launching. At worst, no matter what was transferred, it would be way out on the margins of changing their [nuclear missile] capabilities."<sup>77</sup> Second, officials believed that with proper technology transfer safeguards in place, permitting licenses to launch U.S. satellites on Chinese rockets would not only help the U.S. satellite industry maintain its technical edge over its competitors and open foreign markets to U.S. manufacturers, but also retain employment.

As a result, President Reagan allowed the launch of U.S. commercial satellites by China and promised to grant export licenses for satellites manufactured by its firms in September 1988. In December of that year, a security agreement was signed, and then renegotiated and resigned in 1993. Under the agreement, Defense Department monitors were mandated to oversee discussions between American and Chinese engineers to protect against technology transfer, and the U.S. manufacturers were required to provide 24-hour security to protect the satellite. In 1989, the U.S. and China entered into a six-year bilateral trade agreement that restricted the number of Chinese launches and the price range to within 15 percent of existing Western commercial launch services. A new bilateral space agreement was signed in March 1995 and amended two years later.

### **U.S. Sanctions on High-technology Transfers and Satellite Exports to China**

The friendly environment began to change as the U.S. imposed economic sanctions on China after the Tiananmen crackdown in 1989 and also to prevent missile proliferation (Table 4.4). After Tiananmen,

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<sup>77</sup> Pincus, Walter. 1998. "Satellite Launches were Forced Overseas." Washington Post, July 15.

pressures to take action from both international and domestic audiences were substantial. In response, President Bush suspended all arms sales to and military contact with China and imposed a series of economic sanctions demanding the improvement of Chinese human rights policy. The State Department that governed the exports of communications satellites had enlisted them as “munitions,” thereby satellites were treated as military exports and licenses were suspended. This was reported to have affected \$600 million in government-to-government contracts, \$100 million in commercial sales, including more than 300 items on munitions control list, three communications satellites, and navigational equipment on Boeing 757-200 jets.<sup>78</sup> These sanctions were geared towards deterring firms from conveying sensitive information and expertise to the Chinese.<sup>79</sup>

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<sup>78</sup> Business Week, June 19, 1989.

<sup>79</sup> Taken on its own, export controls are not economic sanctions since they are primarily directed at the sender's firms and not the target. However, export restrictions such as the denial of export licenses for high-technology products were frequently imposed as sanctions by the U.S. government during this period.

Table 4.4: U.S. Sanctions related to Satellite Exports to China

	Date	Sanctions Law	Requirements
Tiananmen Crackdown	1990	Foreign Relations Authorization Act for FY1990 and FY1991 (P.L. 101-246)	Sec. 902(a) have required suspensions in programs related to: (3) exports of Munitions List items; (5) export of satellites for launch by China.
Missile Proliferation	4/30/1991, took effect 6/16/1991  waived 3/23/1992		The George H. Bush Administration denied licenses for the export of U.S. parts for a PRC satellite, the Dongfanghong-3, citing “serious proliferation concerns.”
	5/27/1991, took effect 6/25/1991  waived 3/23/1992	Arms Export Control Act (P.L. 90-629) Sec. 73(a),  Export Administration Act(P/L/ 96-72), Sec.11B(b)(1)	President Bush imposed sanctions on China for transferring to Pakistan technology related to the M-11 short-range ballistic missile (category II), but not for the transfer of complete missiles (category I).  Sanctions denied export licenses and waivers of sanctions for: (1) high speed computers to China, which can be used for missile flight testing; (2) satellites for launch by China, and (3) missile technology or equipment. This affected two PRC firms: China Great Wall and China Precision Machinery Import Export Corporation.
	8/24/1993   waived 11/1/1994	1993-4, US aerospace industry and aerospace company executives lobbied against sanctions and for expansion of satellite exports to China	The Clinton Administration imposes similar category II sanctions, after China is again found to have transferred M-11 related equipment to Pakistan, but not complete missiles.  Eleven PRC firms were sanctioned, including China Great Wall again.
	1998		3/12/1998 memo;  Preparing for the 1998 US-China summit, the Clinton Administration was reported to have proposed supporting China as a partner in the MTCR, issuing a blanket waiver of post-Tiananmen sanctions on satellites, and increasing the quota on the numbers of satellites China is allowed to launch, in exchange for further cooperation in missile nonproliferation.

	11/21/2000		<p>Department of State press briefing:</p> <p>Clinton Administration announced a US-PRC agreement on missile nonproliferation. The State Department announced that the US had determined the Chinese firms that had contributed in missile proliferation to Pakistan (category I and II) and Iran (category II) and announced that US sanctions will be waived on Chinese firms for the past transfers, but imposed on Pakistan and Iran cases. Moreover, the US agreed to resume processing licenses for exporting satellites to China. The US also agreed to resume discussions on extending the 1995 US-China Agreement Regarding International Trade in Commercial Launch Services.</p>
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Source: CRS Report 2011. China and Proliferation of Weapons of Mass Destruction and Missiles: Policy Issues, by Shirley A. Kan; CRS Report 2003. China: Possible Missile Technology Transfers Under US Satellite Export Policy- Actions and Chronology, by Shirley A. Kan.



## Part 1: Predicting Firm Evasion

Dependent Variable	Hypotheses
Firm Behavior: To Evade or Comply?	H1a: <i>The sender's firm is more likely to evade sanctions when the expected level of enforcement is low.</i>  H1b: <i>The sender's firm is more likely to evade sanctions if its share in the target's market is high.</i>

The theory in Chapter 3 predicts that the sender's firm is more likely to attempt sanctions evasion when the costs of complying with sanctions exceed the costs of continuing illicit transactions. To recapitulate, let us consider the firm's payoffs, whose goal is to maximize profits. The firm's cost of compliance includes the loss of market share and political influence over the target, while the cost of evasion incorporates both the inefficiency costs of maintaining secretive business activities and the anticipated punishment if caught and prosecuted. How strongly the sender enforces sanctions determines the firm's anticipated punishment, with strong enforcement increasing the likelihood of being detected and penalized. Hence, when enforcement is weak and the cost of evasion is low, the sender's firm will be more likely to take a chance and continue illicit transactions. When enforcement levels increase, the risks would exceed the expected benefits so that the likelihood of sanctions evasion will decrease.

Thus, the dependent variable is the likelihood of sanctions evasion and the key independent variables are the firm's share in the target's market and the level of enforcement. Since it is difficult to operationalize "likelihood" qualitatively, I treat firm evasion as a dichotomous variable. I identify firm evasion based on the result of federal investigations and outcomes that would not have been possible without continued support from the sender. Firm compliance is determined by examining the reduction in the number of satellite launches by China. The firm's market share is high, moderate or low, measured as the percentage of global market share. Lastly, the sender's level of enforcement is identified as strong or weak, according to the amount of resources devoted towards detecting and prosecuting firm evasion attempts. Enforcement is strong when the sender government formally

investigates sanctions offence reports and imposes sizeable monetary penalties on its firms and weak in the absence of such processes.

### **Allegations of Firm Evasion: Hughes Electronics and Loral Space Systems**

Up till the early 1990s, China's satellite launch capabilities were reasonably advanced yet unstable. China experienced three major accidents attempting to launch American satellites into orbit. The first occurred in December 1992, when China's Long March 2E rocket failed to launch the Optus-B2 satellite produced by Hughes Electronics and exploded en route to orbit. In January 1995, another Chinese Long March launch vehicle exploded after takeoff, destroying the Apstar-2 satellite it was carrying. Apstar-2 had also been manufactured by Hughes. In February 1996, a third Chinese Long March rocket crashed into a nearby village, which destroyed the Intelsat-708 satellite it was carrying. Intelsat-708 had been built by Loral Space Systems (part of Loral Space & Communications), another American firm. By the 2000s, however, China accomplished a great number of successful launches of U.S. commercial satellites, and later of satellites built independently. In 83 known spacecraft launches between October 20, 1996 and June 15, 2010, Chinese launch vehicles experienced only one failure.<sup>80</sup> Considering the fact that satellite technology was monopolized by the U.S. in the 1990s, there is reason to believe that China had somehow continued to receive technology assistance from U.S. firms.

As early as 1996, there were allegations of sanctions evasion by an American firm. In April, a CIA analyst prepared a National Intelligence Estimate (NIE) on how Hughes may have helped improve China's missile capabilities when they reviewed the explosion of its Apstar-2 in 1995. However, the CIA did not approve the NIE and no immediate action was taken.<sup>81</sup> In March 1997, the Air Force's National Air Intelligence Center (NAIC) concluded in a classified report that Loral as well as Hughes had provided expertise that helped China to improve guidance systems on its ballistic missiles and that it had harmed U.S. national security. Loral's case referred to the review process

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<sup>80</sup> "Long March [Chang Zheng]," 2010.

<sup>81</sup> New York Times, December 7, 1998.

regarding the launch failure of its Intelsat-708.<sup>82</sup> The NAIC report was then sent to the Defense Technology Security Administration (DTSA) of the Defense Department, the State Department and the Justice Department. In May 1997, the DTSA concluded in another classified report that the two firms had transferred prohibited expertise to China and by September 1997, the Justice Department began a criminal investigation into allegations that Hughes and Loral had illegally passed technical assistance to their Chinese counterparts.<sup>83</sup> In April 1998, a federal grand jury began investigating whether Loral Space Systems and Hughes Electronics' satellite manufacturing division, a subsidiary of General Motors at the time, had transferred expertise to China that "significantly advanced" the guidance systems of its ballistic missiles in reviewing the failure of their satellite launches in 1995 and 1996.<sup>84</sup>

Both firms denied the charges of illicitly transferring technology to China during satellite launch campaigns. The firms denied that they had conducted an independent investigation on the causes of launch failure. Instead, they had formed "independent review committees" to review the Chinese investigation at the demand of insurance companies. Loral CEO Bernard Schwartz said the firm's internal investigation proved that his employees acted in "good behavior and in compliance." A Chinese foreign ministry spokesman stated that, "the exchange of technical information about satellite launchings between U.S. companies and the PRC aerospace department was a normal activity and fell under international rules." The firms "did not provide technical information about missile technology." (Kan 2003, 57).

### **Weak Enforcement (1988-1998)**

According to the sanctions imposed, the export of U.S. manufactured satellites to China was outlawed unless the President reported to Congress that China had achieved substantial improvements in

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<sup>82</sup> Washington Post, June 7, 1998.

<sup>83</sup> New York Times, April 13, 1998 and June 27, 1998.

<sup>84</sup> Gerth, Jeff. 1998. "U.S. business role in policy on China is under question." New York Times, April 13.

political and human right reforms, or that it was in the national interest.<sup>85</sup> Regardless, there is evidence that the U.S. government did not fully commit to enforcing sanctions on its firms during 1988-1998.

First, the U.S. frequently waived the restrictions imposed on satellite exports to China. As early as December 1989, President Bush waived sanctions for the export of satellite Asiasat-1 and the export license was immediately restored for Hughes, the manufacturer. On February 18, 1998, President Clinton announced to Congress that it was in the “national interest” to export Loral’s Chinasat-8 satellite to China. In fact, during 1990 - 1998, President Bush and President Clinton together issued 13 waivers for 20 satellite projects based on national interest to allow the export of U.S.-origin satellites or components subject to export controls. The waivers were granted for satellites used by China not only launched from China (Table 4.5).

More importantly, sanctions were waived even when there was direct evidence that China had attempted to obtain classified missile-related technology. On April 30, 1991, the Bush administration approved export licenses for two satellites (Aussat-1 and 2, built by Hughes) and U.S. components for Freja (built by various U.S. firms) on the grounds that the end user was non-Chinese. It did not grant permission to export U.S. components for Dongfanghong-3, a communications satellite built by China, citing concerns of missile-proliferation. On June 16, 1991, sanctions were imposed on China for transferring missile-related technology to Pakistan so that no further export licenses would be approved for satellite launches by China. The sanctions affected high technology trade with China, which included advanced computers and satellites for launch by Chinese vehicles, and further activated sanctions against missile proliferation as required by the Arms Export Control Act and Export Administration Act (Table 4.4).<sup>86</sup>

Meanwhile, the State Department found that the China Great Wall Industry Corporation

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<sup>85</sup> The Commerce, Justice, State and Judiciary appropriations (P.L.101-162) of FY1990 and the Foreign Relations Authorization Act (P.L. 101-246, Section 902) of 1990-1991.

<sup>86</sup> This excluded past deals including Aussat and Freja satellites.

(CGWIC) was one of the two Chinese firms that were involved in missile technology proliferation activities that required trade sanctions under the Arms Export Control Act. This should have been of particular concern since several American firms had trade relations with CGWIC, a state-owned company involved in solid rocket motor development. Since CGWIC launched its first foreign satellite on April 7, 1990, it expanded its business with U.S. firms such as Hughes Electronics, Lockheed Martin, and Loral Space and Communications that were permitted to sell or launch U.S.-made satellites in China under strict conditions. Nevertheless, when China announced its agreement to abide by the Missile Technology Control Regime (MTCR) on February 21, 1992, the sanctions were lifted. The following September, the State Department waived restrictions on U.S. exports for six satellite projects with China. These frequent sanctions waivers suggest that the U.S. was willing to offer sanctions relief as a means to accomplish other policy goals, which could provide a bargaining chip to the target as well as establish an expectation that the cost of breaching sanctions will not be so damaging.

Table 4.5: Presidential Waivers of Sanctions for Exports of Satellites or Parts to China

Waiver date	Satellite Project	End-User	Manufacturer
12/19/1989	Asiasat-1	Asia Satellite	Hughes
4/30/1991	Aussat (Optus)	Australia	Hughes
	Freja	Sweden	Various US firms
9/11/1992	Asiasat-2	Asia Satellite	Martin Marietta
	Apsat (or Apstar)	APT Satellite	Hughes and Loral
	Intelsat-708	Intelsat	Loral
	Starsat		(Cancelled)
	AfriSat (or AfriStar)	Afrispace	Alcatel
	Dongfanghong-3	China	China
7/2/1993	Iridium	Iridium/Motorola	Lockheed Martin
	Intelsat-8	Intelsat	Lockheed Martin
7/13/1994	Echostar	Echostar	Martin Marietta
2/6/1996	Mabuhay (Agila 2)	Philippines	Loral
2/6/1996	Chinastar-1	China	Lockheed Martin
2/6/1996	Chinasat-7	China	Hughes
6/23/1996	Asia Pacific Mobile Telecommunications (APMT)	APT Satellite	Hughes
7/9/1996	Globalstar	Globalstar	Loral/Alcatel
11/19/1996	Fengyun-1	China	China
11/23/1996	SinoSat-1	China	Alcatel/Aerospatiale
2/18/1998	Chinasat-8	China	Loral

Source: Various News Articles.

Second, insufficient resources were devoted towards monitoring and managing the security procedures established with allowing U.S. firms to use Chinese vehicles for launching commercial satellites. In 1988, President Reagan granted license applications for commercial satellites conditional

on having adequate technology transfer safeguards to impose liability responsibilities to the Chinese and to also protect the U.S. satellite industry from unfair trade practices. However, structural weaknesses emerged almost immediately and persisted in subsequent administrations.<sup>87</sup> These included personnel shortages, lack of funding, disagreements between executive departments and agencies over management responsibilities, and lax procedures in transporting the satellite to China and ensuring its security at the launch site. Initially, there were simply not enough monitors to cover all conversations among U.S. and Chinese engineers and the monitors themselves believed they lacked authority to enforce export control rules.

During the Bush administration, the Defense Department initiated an evaluation of the security and monitoring procedures as it implemented a launch campaign for AsiaSat-1, a satellite manufactured by Hughes Electronics. It identified funding as a continuing problem as the monitoring program seemed to be funded on an ad hoc basis rather than given its promised amount.<sup>88</sup> After the successful launch of AsiaSat-1 on April 7, 1990, the Air Force Systems Command (AFSC) reported to the Defense Department that, “fiscal constraints in funding and personnel have made it impossible for the Space Systems Division to provide support for follow-on campaigns.” One of its recommendations was to create a new organization that included the resources necessary to support upcoming international launch campaigns. However, the recommendation was not accepted. The Defense Technology Security Administration (DTSA) seconded these recommendations. Moreover, both the AFSC and DTSA warned that although the AsiaSat-1 launch was processed without any security breaches, a post-launch session that included engineers from Hughes Aircraft Company, Hughes Communications Inc., and Defense Department officials, had identified potential problems that needed to be addressed. These included uneven government supervision of technical interchange meetings, unmonitored transfers of know-how, and inactivated security equipment.

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<sup>87</sup> U.S. Senate 1999, pp. 18-20.

<sup>88</sup> Ibid, p.19. The Senate Committee reported that it was unclear that the \$729,800 needed for five years of monitoring for 1.5 launches per year was actually distributed.

As a response, the monitoring program was assigned to the Air Force in 1991. However, because no additional personnel or funding was allocated to effectively manage the increasing number of U.S. satellite launches on Chinese rockets, the Air Force was reluctant to take on such responsibilities. In search of a longer term solution, the Bush administration began an interagency review of the monitoring issue in November 1990 and transferred licensing jurisdiction for some commercial satellites from the State to Commerce Department. However, this grew into a third case of weak enforcement.

Specifically, President Bush divided the oversight and licensing jurisdiction of commercial satellites between the Commerce and State Department in 1992. As a result, the Commerce Department was permitted to license the export of commercial communication satellites as civil or commercial goods if they did not incorporate advanced technologies. It was given the authority to license the export of basic technical data necessary to incorporate the satellite with the launch vehicle. Prior to 1992, all satellites had been categorized under the munitions list. Meanwhile, the State Department was still responsible for licensing the export of satellites containing one of nine technologies identified as giving satellite military capabilities. The Clinton Administration extended this policy in 1996 by transferring the control of all communication satellites that had not been transferred in 1992 to the Commerce Department. On one hand, this made it much easier for U.S. firms to obtain licenses to export satellites and related components to China. However, there were also several side effects. For one, it was left unclear what additional licenses were needed from the State Department for discussions and activities relating to the integration of Commerce-licensed satellites with the launch vehicle. Also, not requiring monitors for satellites exported under Commerce Department licenses while relying on the firms to pursue an additional license from the Commerce Department for technical discussions beyond basic instructions created much confusion with respect to satellite launches in China.

Further, differences between the Commerce and Defense Departments surfaced and clashed, revealing tension between U.S. commercial interests and national security interests. The Commerce



Department's position was that it no longer needed to acquire a license from the State Department. The Defense Department maintained that monitoring was required for all technical exchange meetings regardless of who granted the export licenses. The director of DTSA summarized the issue as follows: "Commerce continues to seek an open-ended transfer of jurisdiction over some of the most advanced military technology regardless of the merits of the technical and security aspects... Under the Commerce system, Commerce's role is to advocate the interests of exporters. The policy and institutional framework favors approval and imposes a significant burden of persuasion on the Department of Defense."<sup>89</sup>

Under these circumstances, it is possible that it was not entirely clear what was expected of Hughes and Loral when conducting reviews of the failed launches. Then, one could suggest that the firms may have breached sanctions laws without knowing it. It was reported that the personnel at the firms in charge of security maintenance had been inadequately trained in the Reagan years. However, that should have improved in the following decade, which rules out the possibility of ignorance. Besides, neither firm made any public claims of not knowing better. A more likely scenario is that taking advantage of the uncertainty of rules, the firms decided to bandwagon on Commerce's initiative and err on the side of taking a risk to secure higher profits rather than taking a safer route with fewer benefits. What we can say for certain is that the problematic dealing of the firms' launch failures was in part due to weak enforcement that lowered the anticipated costs of circumventing sanctions.

### **Strong Enforcement (1998-2005)**

By 1998, amidst disagreements between government agencies and even within the administration, the U.S. government began to allocate more resources towards sanctions enforcement. Specifically, these efforts were realized in the form of federal and criminal investigations that led to unprecedented monetary penalties, and the transfer of licensing authority from Commerce back to the State

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<sup>89</sup> Ibid., pp. 22-23.

Department.

Over the course of several months in 1998, the 105<sup>th</sup> Congress held numerous open and closed hearings to examine the allegations of non-compliance by Hughes and Loral. The subjects of these hearing include the following:

- Joint Economic Committee, April 28, 1998
- **Senate Governmental Affairs Subcommittee on International Security, Proliferation, and Federal Services, May 21, 1998**
- Senate Intelligence Committee June 4, 1998; June 5, 1998; June 10, 1998.
- Senate Foreign Relations Committee, June 11, 1998.
- **House National Security/International Relations Committees, June 17, 1998; June 18, 1998; June 23, 1998.**
- Senate Foreign Relations Subcommittee on East Asian/Pacific Affairs, June 18, 1998.
- Senate Governmental Affairs Subcommittee on International Security, Proliferation, and Federal Services, June 18, 1998; July 8, 1998.
- Senate Intelligence Committee, June 24, 1998.
- House Science Committee, June 25, 1998.
- Senate Foreign Relations Committee, June 25, 1998.
- Senate Governmental Affairs Committee, June 25, 1998.
- Senate Intelligence Committee, July 8, 1998.
- Senate Armed Services Committee, July 9, 1998.
- Senate Intelligence Committee, July 15, 1998.
- Senate Governmental Affairs Subcommittee on International Security, Proliferation, and Federal Services, July 29, 1998.
- Senate Commerce, Science, and Transportation Committee, September 17, 1998.

Among these, two events beg closer examination. On May 21, 1998, the Senate agreed to lead an investigation into the satellite technology transfer issue and created a task force to supervise investigations of the Committees on Intelligence, Foreign Relations, Armed Services, and Governmental Affairs. In May 1999, the Senate Select Committee on Intelligence (SSCI) released a report.<sup>90</sup> The Committee found that improvements in China's satellite launch capabilities would pose challenges to U.S. national security, and that despite assurances of government monitoring and security safeguards, there were security violations and significant weaknesses in the implementation

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<sup>90</sup> The document was titled, "Report on Impacts to U.S. National Security of Advanced Satellite Technology Exports to the People's Republic of China (PRC), and Report on the PRC's Efforts to Influence U.S. Policy. "

of the satellite export policy since the Reagan administration. As China received technical assistance from non-U.S. sources as well, the Committee was skeptical about the possibility that technical information gained during U.S. satellite launch campaigns had been directly used to advance China's ballistic missile system. Nevertheless, it claimed that, "the technical information transferred during certain satellite launch campaigns enables the PRC to improve its present and future ICBM force that threatens the United States."<sup>91</sup> During a typical satellite launch campaign, U.S. engineers and the launch service provider would hold meetings where they exchanged detailed information on satellite and launch vehicle specifications, capabilities, technical requirements, satellite-launch vehicle integration and other matters critical to a successful satellite launch. These meetings would last several days, with the campaigns ranging from one to up to three years. Naturally, failed launches led to additional meetings to determine the source of the failure. Because similar analyses and methodologies were applicable to the development of other missile systems, China was believed to use, when practical, the transferred information to improve its short and intermediate range ballistic missiles that would threaten U.S. forces stationed in Korea and Japan. The bottom line was that "U.S. government officials had failed to take seriously enough the counterintelligence threat during satellite launch campaigns."<sup>92</sup>

Particularly, the Committee found that investigations into the Hughes Apstar-2 and Loral Intelsat-708 satellite launch failures of 1995 and 1996, respectively, had facilitated the transfer of technical know-how to the Chinese launch industry. According to the report, Hughes did not request Defense Department monitors prior to the Apstar-2 launch and once the launch failed, Hughes initiated a separate investigation after the China Academy of Launch Technology (CALT) had already conducted its own. More problematic was that Hughes shared its findings from the investigation in a written document with CALT and the Commerce Department, without even notifying the State Department of the investigation. As a result, neither the Defense nor State Department officials had a

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<sup>91</sup> Ibid., p. 12.

<sup>92</sup> Ibid., p. 8.

chance to review the written analysis before it was offered to the Chinese.

Based on documents submitted by Hughes, the Department of Defense and the Department of State evaluated the Apstar-2 launch failure. The Defense Department concluded that the benefits derived from the launch failure investigation were unlikely to have changed the strategic military balance between the U.S. and China. Nonetheless, “in light of the strict standards of U.S. policy not to assist China in improving its satellite and missile-related capabilities, ... the scope and content of the launch failure investigation conducted by Hughes with the Chinese following the January 1995 Apstar-2 failure raises national security concerns both with regard to violating those standards and to potentially contributing to China’s missile capabilities.”<sup>93</sup> The State Department’s Office of Defense Trade Controls (DTC) concluded that Hughes had provided technical lessons that are “inherently applicable” to China’s missile as well as satellite launch programs.<sup>94</sup>

Meanwhile, Loral claimed it had formed an Independent Review Commission (IRC) to determine what went wrong after the launch failure of its Intelsat-708. When its Chinese counterpart, China Great Wall Industry Corporation (CGWIC), requested that the IRC certify its independent technical evaluation of the launch failure, Loral exchanged several review documents without prior approval from the State Department. This was a necessary step since the satellite had been launched under a State Department license. The Intelligence Community subsequently agreed there was a possibility that the advice given to the Chinese could help reinforce its design and test practices, improve the reliability of its space vehicles, and that China may try to exploit any new information in developing their space launch and ballistic missile programs.<sup>95</sup>

In June 1998, the House of Representatives created the Select Committee on U.S. National Security and Military/Commercial Concerns with the PRC, known as the “Cox Committee.” Chaired by Representative Christopher Cox (Republican-CA), the Committee set out to investigate the

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<sup>93</sup> Ibid., p. 9.

<sup>94</sup> U.S. House of Representatives 1999 (a.k.a. Cox Committee Report), pp. 76-84.

<sup>95</sup> U.S. Senate 1999, p. 10.

concerns over Chinese acquisition of sensitive U.S. missile and space technology in connection with the launching of U.S. civilian satellites using Chinese launchers. The investigation was broadened in October 1998 to include policies before the Clinton administration, other dual-use technology exports and alleged acquisitions of U.S. nuclear weapons secrets. The Committee released a declassified report on May 25, 1999, commonly referred to as the “Cox Commission Report,” which concluded that Hughes and Loral had helped improve China’s missile capabilities. The alleged security problems in the report were met with much criticism as being exaggerated and lacking in accurate evidence.<sup>96</sup> However, the report is useful in cross-examining the timeline of firm conduct that led to these allegations in the first place. The brief summary provided below includes details that would not have been revealed without an in-depth investigation initiated by government agencies with a strong mandate.

### **Hughes<sup>97</sup>**

On January 26, 1995, a Chinese Long March 2E rocket carrying the Apstar-2 satellite exploded after lift-off. After conducting an investigation to identify the cause of the failure, Hughes disclosed information that related to improving the Long March 2E fairing, a portion of the rocket that protects the payload during launch. Such information was outside the scope of the original licenses Hughes obtained from the State and Commerce Departments, respectively. First, Hughes had obtained a clearance for the 1995 disclosures that was improperly issued by a Commerce Department official. By the time of the failure investigation, partial jurisdiction for commercial satellites had been transferred to the Commerce Department, but licensing for improvements to any part of the rocket, such as the fairing, remained with the State Department. Evidence showed that Hughes officials responsible for the launch failure investigation knew that technical information that would improve the rocket, including the fairing, was still subject to State Department jurisdiction and was not

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<sup>96</sup> [http://fsi.stanford.edu/publications/cox\\_committee\\_report\\_the\\_an\\_assessment](http://fsi.stanford.edu/publications/cox_committee_report_the_an_assessment).

<sup>97</sup> Cox Committee Report 1999, Chapter 5.

licensed for export. Nonetheless, Hughes had sought Commerce Department approval to disclose information regarding the fairing to the Chinese. A Commerce Department official, without consulting with Defense Department or State Department experts, had approved the disclosure on the assumption that the fairing was part of the satellite, not the rocket. He reportedly acknowledged that the decision was a mistake. Second, Hughes claimed that the information disclosure was authorized by the Defense Technology Security Administration monitor. However, this would have exceeded the authority of the Defense Technology Security Administration monitor since he was not empowered to expand the scope of the license granted by the State Department. The monitor also should have known that a separate license was needed for the launch failure analysis activities.

#### **Loral<sup>98</sup>**

On February 15, 1996, a Chinese Long March 3B rocket that was carrying the U.S. made Intelsat-708 satellite crashed before reaching orbit. The China Great Wall Industry Corporation (CGWIC) conducted an investigation and concluded that the most probable cause of the failure was the inner frame of the inertial measurement unit. In March 1996, representatives of the space launch insurance industry insisted that the CGWIC conduct an independent review of the Chinese failure investigation. Therefore, in April 1996, the CGWIC invited Loral's Senior Vice President to chair the Independent Review Committee (IRC), who then recruited engineers from Loral, Hughes and some others. The IRC's draft report that was sent to the China in May 1996 indicated that the cause of the failure could also be in two other places: the inertial measurement unit follow-up frame, or an open loop in the feedback path. The final report of the Chinese reversed its initial conclusion, stating that the power amplifier in the follow-up frame was the root cause of the crash. Taking issue of the timing of this reversal, the Defense Department argued it was the IRC review that led the Chinese to discover the true problem with the Long March rocket. At the demand of the State Department, both Loral and Hughes submitted "voluntary" disclosures documenting their involvement in the IRC that was

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<sup>98</sup> Cox Committee Report 1999, Chapter 6.

reviewed by several government agencies. The Defense Department concluded that “Loral and Hughes committed a serious export control violation by virtue of having performed a defense service without a license...,” while the State Department referred the matter to the Department of Justice for possible criminal prosecution. An interagency review of 1998 concluded that the IRC report may have helped the Chinese discover the actual cause of the Long March failure and that it could improve the reliability of Chinese rockets.

Several important changes occurred after the federal investigations. First, export licenses were denied to Hughes and Loral on several accounts. In February 1999, the Clinton administration denied approval to Hughes for the export of the APMT satellite, citing concerns that the end-use would be the PLA, the Chinese military. Hughes had been granted permission to export in 1997, but had changed the design of the spacecraft and needed new licensing. In August 2000, the State Department reinstated the suspension of a technical assistance agreement for Loral regarding the launch of Chinasat-8 in December 1998. However, in January 2001, the Chinasat-8 export application was returned to Loral without action.<sup>99</sup>

Second, several U.S. firms were charged with fines for violating export control laws. In December 2002, the State Department’s Office of Defense Trade Controls charged Hughes and Boeing Satellite Systems with 123 violations of the Arms Exports Control Act and International Traffic in Arms Regulations in connection with technology transfers to China after the failed launches in January 1995 and February 1996. The Hughes Electronics’ space launch division, Hughes Space and Communications Company, which had committed the supposed improprieties, had been purchased by Boeing for \$3.7 billion in 2000.<sup>100</sup> The State Department threatened Boeing with more than \$60 million in penalties as well as export restrictions that could be even more costly to the company. Hughes was by far the most aggressive of the U.S. satellite manufacturers and staked much

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<sup>99</sup> Smith 2006, p.13.

<sup>100</sup> Mintz, John. 2003. “Firms accused of giving space technology to China; State Department charges that US companies made illegal transfers.” Washington Post, January 1.

of its corporate future on penetrating the Chinese market. According to the State Department, “Unlike Loral, Hughes and Boeing have both failed to recognize the seriousness of the violations and have been unprepared to take steps to resolve the matter and to ensure no recurrence of violations in the future.”<sup>101</sup> The State Department reported numerous instances where Hughes’ engineers or executives gave the Chinese lengthy briefings or papers describing the reasons for launch failure.<sup>102</sup>

Similar charges were made against Lockheed Martin, another U.S. firm cooperating with the Chinese on satellite technology. In April 2000, the State Department charged Lockheed Martin Corporation with 30 violations of the Arms Export and Control Act by providing a scientific assessment of a Chinese satellite motor to a state-owned Chinese firm.<sup>103</sup> According to Lockheed, it conducted a review in 1994 on the kick-motor that Asia Satellite Telecommunications Co. (Asiasat) planned to use in launching its communications satellite. The results were then reported to Asiasat, a Hong Kong-based firm that is partially owned by China International Trust and Investment Corporation (CITIC), a state-owned firm. CITIC happened to be the most influential financial and industrial conglomerate in China, with holdings that include steel mills in Delaware, forests in Washington State as well as one of China’s largest banks and interests in power plants, pharmaceuticals, automobiles and textiles.<sup>104</sup> Prior to sending Asiasat copies of the report, Lockheed

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<sup>101</sup> “Boeing rejects complaints on leaks to China.” New York Times, January 3, 2003.

<sup>102</sup> Mintz, John. 1998. “Report faults Hughes on data given China; Pentagon agencies cite effect on US security.” Washington Post, December 9. The following is a direct quote from the news article: Following the January 1995 explosion of a Long March rocket upon liftoff, Hughes then-Vice President Steven Dorfman wrote to a top Chinese space official that “Hughes is prepared to fully cooperate with you in investigating this failure... I have instructed our people to make available whatever data and resources are required... I strongly support our mutual cooperation, including meaningful technology transfer.” A Hughes fax that same year said Hughes officials briefed executives of a top Chinese telecommunications entity “about everything” concerning the launch problem. The Chinese entity “had been present in all of the failure meetings to date, and has copies of everything from both sides.” ... “It is time for Hughes to either ‘put up or shut up’ in regard to meeting their previously stated commitment of transferring technology to China,” said an internal Hughes memorandum in May 1995. “If we want to win [a particular Chinese contract], Hughes must make a real commitment to transferring technology to China.”

<sup>103</sup> Leob, Vernon. 2000. “Lockheed aided China on rocket motor, U.S. says; Firm faces millions in fines.” Washington Post, April 6.

<sup>104</sup> Ibid.



said it also sent its study for review by the Department of Defense and then shared the edited document with China Great Wall Industries Corporation (CGWIC). The State Department alleged that Lockheed had sent the unedited version of the report to Asiasat before being reviewed by the Defense Department and that the Pentagon was not notified of this fact until later. Concerns were also raised on sharing the edited report with CGWIC “that might enhance [Chinese] space launch vehicles,” as well as conducting the study in the first place. Lockheed denied the charges and claimed the technical assessment was conducted under strict confidentiality with Asiasat that prohibited dissemination to firms or government entities in China.

Formal governmental charges against the major American firms resulted in substantial civil penalties. In June 2000, Lockheed Martin agreed to pay \$13 million in penalties to the State Department. At the time, it was the largest civil penalty ever assessed under the Arms Export Control Act.<sup>105</sup> Of the total, \$5 million would be used to set up a comprehensive computer control system that the Defense and State Departments would use to access all of its foreign space and missile deals.

The Justice Department ended its criminal investigation on Hughes and Loral in 2002 and declined to pursue charges. Nonetheless, persistent investigations resulted in civil settlements with substantial monetary punishment. On January 9, 2002, Loral announced a \$20 million civil penalty agreement that set another record high. Of the total, the firm would pay \$14 million to the State Department and use \$6 million to improve its export compliance program. The penalty was certain to hurt Loral, which was struggling financially at the time.<sup>106</sup> The agreement noted that Loral officials “neither admit nor deny” the government’s charges but said executives “acknowledge the nature and seriousness of the offenses alleged by the department in the draft charging letter, including the risk of harm to the security and foreign policy interests of the United States, and wish to make amends through the payment of restitution.” Loral’s chief executive Bernard L. Schwartz accepted “full

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<sup>105</sup> Sanger, David E. 2000. “U.S. finds Lockheed \$13 million in China Satellite Case,” New York Times, June 14.

<sup>106</sup> Cassidy, Padraic. 2001. “Loral falls to earth.” Daily Deal (New York, NY), June 21; “Loral files for bankruptcy amid debt, weak demand.” Aerospace Daily, July 16, 2003.

responsibility for the matter,” however, portrayed the incident as an error by a single Loral employee who had provided the Chinese with an internal report. He said, “Loral and its employees are patriotic, law-abiding citizens, and we take this matter very seriously.” “We historically have had an excellent security record and are committed to vigorous compliance with export control laws.”<sup>107</sup>

In March 2003, Hughes Electronics and Boeing Satellite Systems announced that they had agreed to a \$32 million settlement with the State Department, the largest in an arms export case. The firms would invest \$8 million to increase their export compliance programs.<sup>108</sup> The settlement also called for the firms to appoint a separate third party to monitor the agreement as well as future exports to China. In a joint statement, Jack A. Shaw, president and chief executive of Hughes, and Dave Ryan, vice president and general manager of Boeing Satellite Systems, acknowledged the “nature and seriousness of the offenses charged by the Department of State, including the harm such offenses could cause to the security and foreign policy interests of the United States.”<sup>109</sup> The agreement seemed to reverse Hughes’ previous denials of wrongdoing because it stated that its “regret for not having obtained licenses that should have been obtained” was “notwithstanding Hughes’ prior public comments to the contrary.”<sup>110</sup> Just two months earlier, when the State Department threatened the firm with more than \$60 million in penalties as well as export restrictions, Hughes spokesman had said, “We don’t believe we’ve done anything wrong... We’re in negotiations with the State Department, and we’ll be reviewing our options.”<sup>111</sup> A Boeing spokesman had also commented that “... it [the settlement] would seriously hamper our ability to do our business overseas.”<sup>112</sup> The heads of the 1998

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<sup>107</sup> Marquis, Christopher. 2002. “Satellite maker fined \$20 million in China trade secrets case.” New York Times, January 10.

<sup>108</sup> Merle, Renae. 2003. “Hughes, Boeing settle with U.S.” Washington Post, March 6.

<sup>109</sup> Ibid.

<sup>110</sup> Gerth, Jeff. 2003. “Two companies pay penalties for improving China rockets.” New York Times, March 6.

<sup>111</sup> Mintz, John. 2003.

<sup>112</sup> “Boeing Rejects Complaints on Leaks to China.” New York Times, January 3, 2003.

Congressional committee welcomed the outcome and issued a statement that said, “This steep fine and sobering result is another reminder that effectively preventing weapons proliferation requires vigilant enforcement of export controls on military technology.”<sup>113</sup>

Not all allegations of illicit technology transfers found fault with American firms, however. In July 1998, concerns were raised that Motorola had assisted the Chinese to develop missile capabilities. In December 1997, China had launched two satellites for Iridium, which had been built by Motorola. The rocket had two stages and a smart dispenser, an upper-stage booster, on top that deployed the two satellites. A classified study by the Air Force’s National Air Intelligence Center (NAIC) concluded that the newly developed smart dispenser could be adapted by the Chinese to deploy multiple re-entry vehicles. However, the report found no evidence that China was using the dispenser for that purpose.<sup>114</sup> The claim was seconded by the Pentagon, which reported that releasing multiple satellites and targeting multiple warheads require different technology (Kan 1999).

Third, an important change was also made to jurisdiction over export licenses. As federal investigations progressed, Congress concluded that the Commerce Department had been too interested in boosting commercial ties with China at the expense of national security. The State Department regained authority over the licensing of satellite exports, pursuant to the National Defense Authorization Act for FY1999.<sup>115</sup> Congress passed the Strom Thurmond Defense Act in 1998, which included the Satellite Export Control Amendment. The amendment was notable in two ways. First, it transferred all satellites and related items that were on the Commerce Control List of dual-use items to the U.S. Munitions List. The executive branch could no longer use its discretion to determine whether or not commercial satellites should be regulated as munitions or dual-use items. There was no other case in the entire history of U.S. export controls in which Congress selected a particular item to be mandated as either a munitions or dual-use item (Mineiro 2012, 61). Second, waivers for the

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<sup>113</sup> Gerth, Jeff. 2003.

<sup>114</sup> Gertz, Bill. 1998. “U.S. Technology Builds ‘Bridge’ for China Missile,” Washington Times, July 14.

<sup>115</sup> New York Times, July 18, 1998.

export of satellites to China for launch, formerly granted under Presidential waivers on a case-by-case basis to uphold “national interest,” became subject to a Congressional reporting requirement and a waiver on the grounds of “U.S. national security interests.” These standards made it more difficult for the President to issue an export waiver. In fact, no Presidential waivers have been granted since the enactment of the amendment (Mineiro 2012, 62).

In response to the jurisdictional reversal, the aerospace and space insurance industries complained that regulations were being implemented too broadly and vigorously. The Satellite Industry Association (SIA) reported that U.S. satellite manufacturers were losing market share to foreign competitors due to the transfer of jurisdiction to the State Department, citing reasons of increased uncertainty over when and whether export licenses will be approved (Lewis 2002). Some international customers had expressed unwillingness to buy U.S. satellites since the State Department could not process license applications in a predictable manner. However, no further legislative actions were taken beyond the 108<sup>th</sup> Congress.

### **Firm Compliance Following Strong Enforcement**

Then, did the increased level of enforcement since 1998 effectively deter U.S. satellite firms from evading sanctions? There is substantial evidence that the likelihood of satellite related technology transfers from the U.S. to China substantially decreased beyond this critical point, and that as a consequence, the Chinese satellite launch business was negatively affected. First, the U.S. firms under investigation were no longer involved in satellite launches after 1998. Table 4.6 shows Chinese satellite launches involving U.S. firms since its first success in 1990. This clearly indicates that Hughes and Loral were the main satellite manufacturers for Chinese launches prior to April 1998. However, as federal investigations progressed, the firms began to give way to other U.S. firms such as Motorola that were redeemed of evasion charges and by China’s independent launching efforts using its Long March missiles. The downward sloping line in Figure 4.2 shows that U.S. firms reduced their involvement in commercial satellite launches after 1998, at least until 2001. It is possible that this

inactivity disadvantaged American firms in the global satellite market, benefitting European competitors such as Alcatel and Astrium, marking the first time that U.S. satellite firms have trailed their European competitors. Leading U.S. satellite manufacturers won 79 per cent of all commercial satellite orders worldwide from 1992 to 1999. By 2000, however, U.S. market share dropped to 47 percent. European firms outrun U.S. firms in geo-satellite orders for the first time in 2000.<sup>116</sup> Moreover, while world satellite manufacturing revenues declined by 18 percent in 2001, U.S. satellite manufacturing revenues declined by a much greater degree, 38 percent. The U.S. share of global satellite sales dropped sharply from 73 percent in 1995 to 25 percent in 2005.<sup>117</sup>

Second, there was a significant reduction in the number of commercial satellite launches by China after 1998. In 1995, the U.S. and China signed a bilateral space launch agreement to allow China to launch up to 11 new satellites per year to geostationary orbit at prices not less than 15 percent below that charged by Western firms (Kan 2011). Most satellites were manufactured by U.S. firms or included U.S. components and thus required export licenses, giving the U.S. considerable influence over how other countries participated in the commercial launch services market (Smith 2006). Figure 4.2 indicates that although the Chinese quota had not been reached, the number of Chinese commercial satellite launches decreased after 1998 with no additional Chinese satellite launches in the years 2000, 2001 and 2002. The Satellite Industry Association (SIA) released figures in May 2001 that showed U.S. satellite manufacturers losing market share to foreign companies.<sup>118</sup>

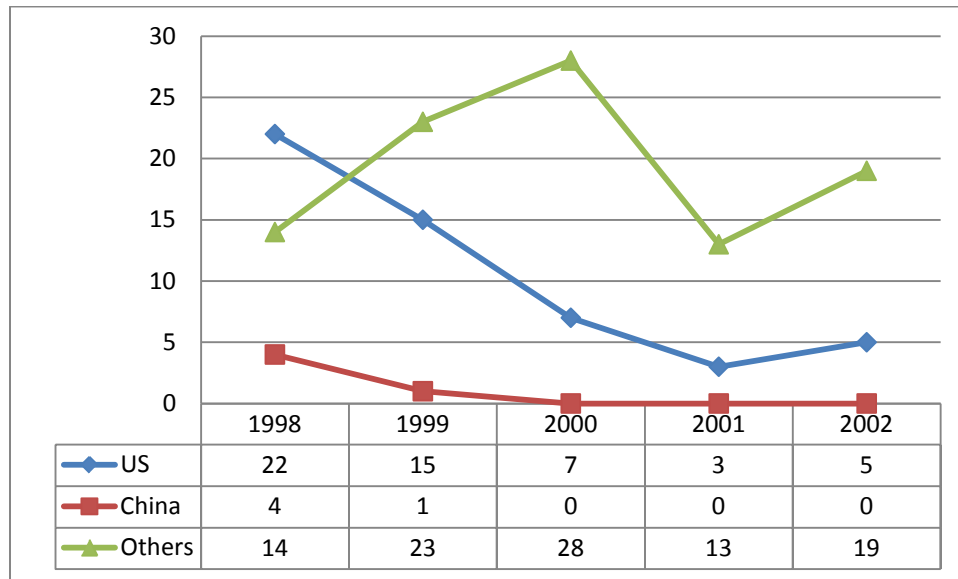
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<sup>116</sup> Alden, Edward. 2001. Financial Times. "Fears over the use of technology overseas has resulted in European companies picking up market share." March 16.

<sup>117</sup> <http://www.aia-aerospace.org/assets/CompetingForSpaceReport.pdf>.

<sup>118</sup> Satellite Industry Indicators Survey, 2001-2002. Satellite Industry Association, Futron.

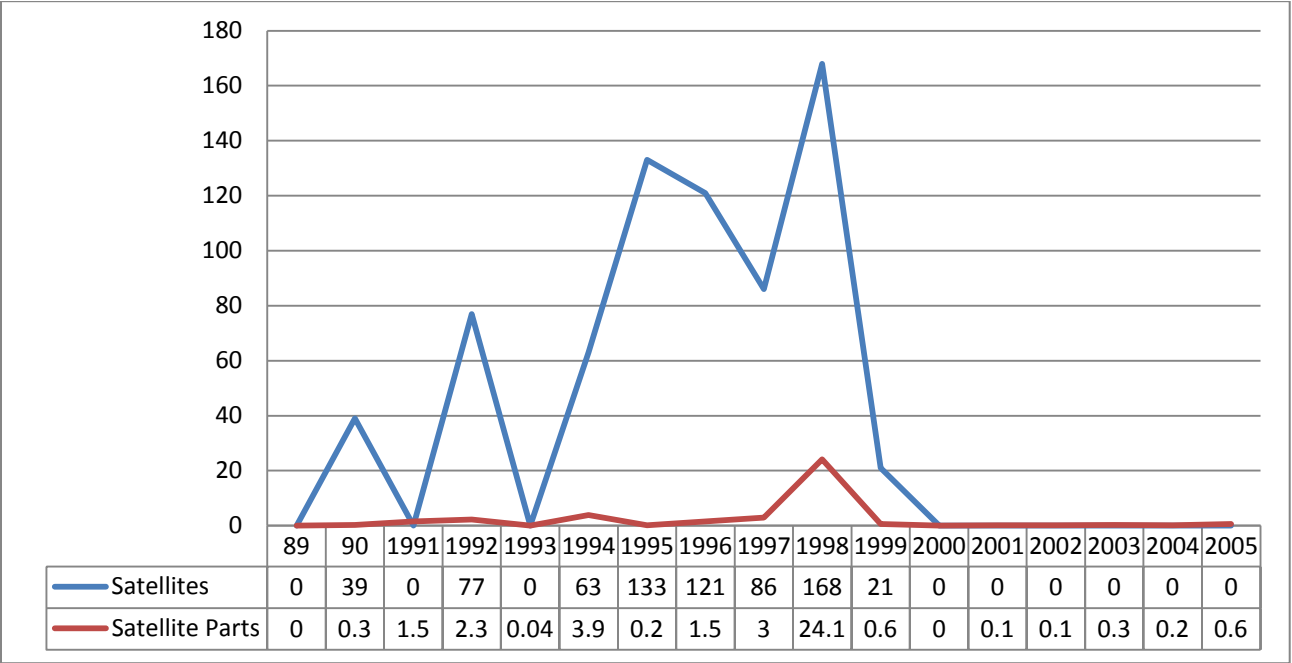
Figure 4.2: Number of Commercial Satellite Launches: 1998-2002



Source: Data from Aerospace Daily, July 2, 2003.

Figure 4.3 shows that U.S. satellite exports to China fluctuated during 1989-1998, actually reaching its highest point in 1998 but steeply declining to almost zero exports in 2000. As previously noted, American firms were the main partners of the China Great Wall Industry Corporation (CGWIC). Since China was highly dependent on U.S. satellite manufacturers, reduced exports should have reduced the number of Chinese commercial satellite launches. The next quote summarizes these results appropriately: “After the U.S. government banned satellite exports to China, however, Chinese launch companies’ supplies were cut off and the CGWIC suddenly had no satellites to launch. From that point through 2005, the CGWIC has not launched a single foreign satellite. Europe and Japan have largely stepped in to capture the market share made available after China’s withdrawal.” (Xiaobing 2006)

Figure 4.3: U.S. Communications Satellite Exports to China: 1989-2005  
(millions of dollars)



Source: Data from Hufbauer et al. (2007), Case 91-2 US v. China

## Part 2: Predicting Strong Enforcement

Dependent Variable	Hypotheses
Enforcement: Strong or Weak?	<p>H2a: <i>Senders are more likely to strongly enforce sanctions when the sender firm's stake in the target's market is moderate and less likely to strongly enforce when its stake is either low or high.</i></p> <p>H3a: <i>Senders are more likely to strongly enforce sanctions when the sender's transactions with the target are difficult to substitute.</i></p>

Next, let us consider the sender's payoff, who seeks to maximize gains on both economic and political fronts. If the expected benefits of strong enforcement exceed the costs, the sender will be more likely to strengthen enforcement levels. The benefits include the political gains of successfully coercing the target while the costs include resource allocation, loss of firm transactions, and the eventual weakening of potential influence over the target. The projected loss of firm transactions depends on how high the sender firm's stake is in the target's market, which also affects the firm's likelihood of sanctions evasion. If the firm's stake is extremely high, it may be willing to bear the risks of continuing illicit transactions at all costs, making sanctions unenforceable. In this case, the cost of allocating enough resources will be so great and the political gains of target compliance unrealizable that the sender will be reluctant to strongly enforce. If the firm's stake is low, however, the benefits of maintaining illicit transactions will be relatively small so that it will not be worthwhile to bear the inefficiency costs and the risk of punishment. Thus, the firm will more likely comply with sanctions, rendering it unnecessary for the sender to strongly enforce. Meanwhile, if the firm's stake is moderate, there is a chance that the firm will attempt to evade sanctions and if the sender allocates sufficient resources towards enforcement, it is possible that the firms will be deterred from doing so. Hence, the sender is more likely to strongly enforce when its stake is moderate in the target's market, and less likely when its stake is high or low.

The dependent variable is the likelihood of strong enforcement, which is treated as dichotomous. Enforcement is considered strong when the sender government formally investigates



sanctions offence reports and imposes sizeable monetary penalties on its firms and weak when resources devoted to detecting and prosecuting firm evasion is minimal. The key independent variables are the sender firm's stakes and the substitutability of sender-target transactions. The firm's stake is high, moderate or low, measured as the percentage of global market share. Substitutability is considered high if there are foreign firms that can replace the sender's transactions with the target and low if transactions are exclusive. The control variables include the sender's major policy goal, likelihood of future conflict, and the balance of military capabilities.<sup>119</sup> These variables encompass the traditional national security concerns of power politics and are constant throughout 1988-2005. Specifically, the U.S. consistently pursues a major policy goal in sanctioning China, the U.S. and China are strategic military rivals, and the U.S. maintains a distinct advantage in military capabilities over China.

### **U.S. Sanctions on High-Technology Transfers and Satellite Exports Revisited**

Several U.S. firms were involved in joint projects with the Chinese to launch commercial satellites (Table 4.6). Hughes Electronics was the first to launch its satellite on a Long March-3 rocket in 1990, which was followed by a series of Chinese launches using satellites manufactured by Loral Space and Communications, Lockheed Martin, and later Motorola. In fact, with the exception of Sinosat-1 launched in July 1998, which was built by two French firms, China was solely dependent on American manufacturers for the supply of satellites to launch on their space vehicles. Even the French firms were reliant on U.S.-made parts. In fact, the U.S. had dominant market power in the satellite manufacturing sector as it had invested in related technologies and infrastructure during the Cold War in competition with the Soviet Union. Accordingly, U.S. firm stakes in the Chinese market were extremely high throughout the 1990s.

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<sup>119</sup> See Chapter 5.

Table 4.6: Satellite Manufacturing Firms and Chinese Launch Projects

U.S. Manufacturer	Waiver Date	Launch Date	Project
Hughes Electronics	12/19/1989		Asiasat-1
		4/7/1990	China Great Wall Industry Corporation, using a LM-3 rocket, launched a foreign satellite, Asiasat, for the first time.
	4/30/1991		Aussat (Optus)
		8/14/1992	After the mission was aborted in March 1992, China launched Aussat (Optus-B1).
	9/11/1992		Apsat (or Apstar)
		12/21/1992	A Chinese LM-2E launch vehicle exploded and destroyed Australian Optus-B2 built by Hughes. In 8/16/1993, Hughes and China Great Wall issued a joint statement of the cause of the explosion. The statement did not identify the cause and each side denied any blame.
		7/21/1994	A Chinese LM-3 rocket launched Apstar-1.
		8/28/1994	A Chinese LM-2E rocket launched Australia's Optus-B3.
		1/26/1995	A Chinese LM-2E launched vehicle exploded after liftoff and destroyed Apstar-2.
	2/6/1996		Chinasat-7
	6/23/1996		Asia Pacific Mobile Telecommunications (APMT)
		7/3/1996	A Chinese LM-3 launched Apstar-1A.
		8/18/1996	China failed to launch its Chinasat-7 into the correct orbit.
Loral Space & Communications	9/11/1992		Apsat (or Apstar), Intelsat-708.
	2/6/1996		Mabuhay (Agila 2)
		2/15/1996	A Chinese LM-3B rocket exploded after liftoff, and destroyed Intelsat-708.
	7/9/1996		Globalstar
		8/19/1997	China launched the Agila 2.
		10/17/1997	China launched Asia Pacific Telecommunications Satellite (ApStar-2R) on a LM-3B rocket.
	2/18/1998		Chinasat-8
		3/16/1998	Loral Space and Communications signed an agreement with China Great Wall Industry Corp. to launch five of Loral's communication satellites between March 1998 and March 2002 using Long March-3B rockets.
Martin Marietta	9/11/1992		Asia Satellite

	7/13/1994		Echostar
		11/28/1995	A Chinese LM-2E launched the Asiasat-2, but the launch failed. Asiasat company claimed \$50 million in insurance for the damage.
		12/28/1995	A Chinese LM-2E rocket launched the Echostar-1 satellite.
Motorola		12/8/1997	China launched two satellites for Iridium on one Long March 2C/SD rocket.
		3/26/1998	China launched two Iridium satellites on a LM-2C/SD rocket.
		5/2/1998	A Chinese Long March 2C/2D rocket launched two Iridium satellites to low earth orbit.
		8/19/1998	A Chinese Long March 2C/SD rocket launched two replenishment satellites for Iridium.
		12/19/1998	A Chinese Long March 2C/SD rocket launched two replenishment satellites for Iridium.
		6/11/1999	A Chinese LM-2C rocket launched two Iridium satellites.
Lockheed Martin	7/2/1993		Iridium, Intelsat-8
	2/6/1996		Chinastar-1
		4/3/1998	China's official news agency reported that Lockheed Martin is "consulting with the PRC on satellite manufacturing."
		5/30/1998	China launched its Chinastar-1 on a LM-3B rocket.
Alcatel, Aerospatiale ^	9/11/1992		AfriSat (or AfriStar)
	7/9/1996		Globalstar
	11/23/1996		SinoSat-1
		7/18/1998	China launched its Sinosat-1 on a LM-3B rocket.

Source: CRS Report 2003. China: Possible Missile Technology Transfers Under US Satellite Export Policy-Actions and Chronology, by Shirley A. Kan, p. 21.

^ French firms dependent on U.S. made components.

### **Market Conditions Preceding Strong Enforcement: Moderate Stakes, Low Substitutability**

The market landscape began to change in the late 1990s. According to the 2004 Satellite Industry Indicator Survey, the satellite industry consists of four major sectors: <sup>120</sup>

<sup>120</sup> [http://www1.futron.com/pdf/resource\\_center/reports/SIA\\_2004\\_Indicators.pdf](http://www1.futron.com/pdf/resource_center/reports/SIA_2004_Indicators.pdf).

Table 4.7: Composition of the Satellite Industry

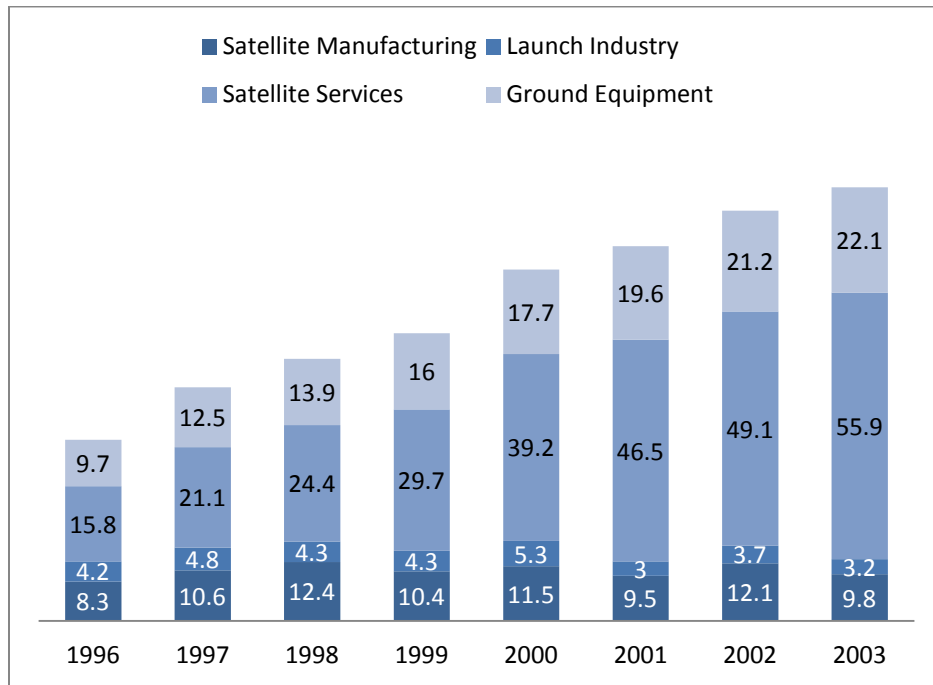
Satellite Manufacturing <ul style="list-style-type: none"> <li>• Satellite manufacturing</li> <li>• Component and subsystem manufacturing</li> </ul>	Satellite Services <ul style="list-style-type: none"> <li>• Fixed satellite services (voice, video, data, remote sensing)</li> <li>• Mobile satellite services (mobile telephony, data &amp; messaging)</li> </ul>
Ground Equipment <ul style="list-style-type: none"> <li>• Mobile terminals</li> <li>• Control stations</li> <li>• Handheld phones</li> </ul>	Satellite Launch Industry <ul style="list-style-type: none"> <li>• Launch services</li> <li>• Vehicle manufacturing</li> <li>• Component and subsystem manufacturing</li> </ul>

Figure 4.4 shows annual changes in world revenues by different sectors in the satellite industry during 1996 - 2003.<sup>121</sup> The global satellite industry revenue increased every year since 1996, showing an average growth rate of 13 percent. However, while the revenue for ground equipment manufacturing and satellite services grew substantially, the satellite manufacturing and launch industries suffered losses throughout the period.

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<sup>121</sup> Data for the figures below were obtained from the Satellite Industry Indicators Survey of 2003. "Satellite Industry Indicators Fact Sheet," June 2004. The study was conducted for the Satellite Industry Association by the Futron Corporation.

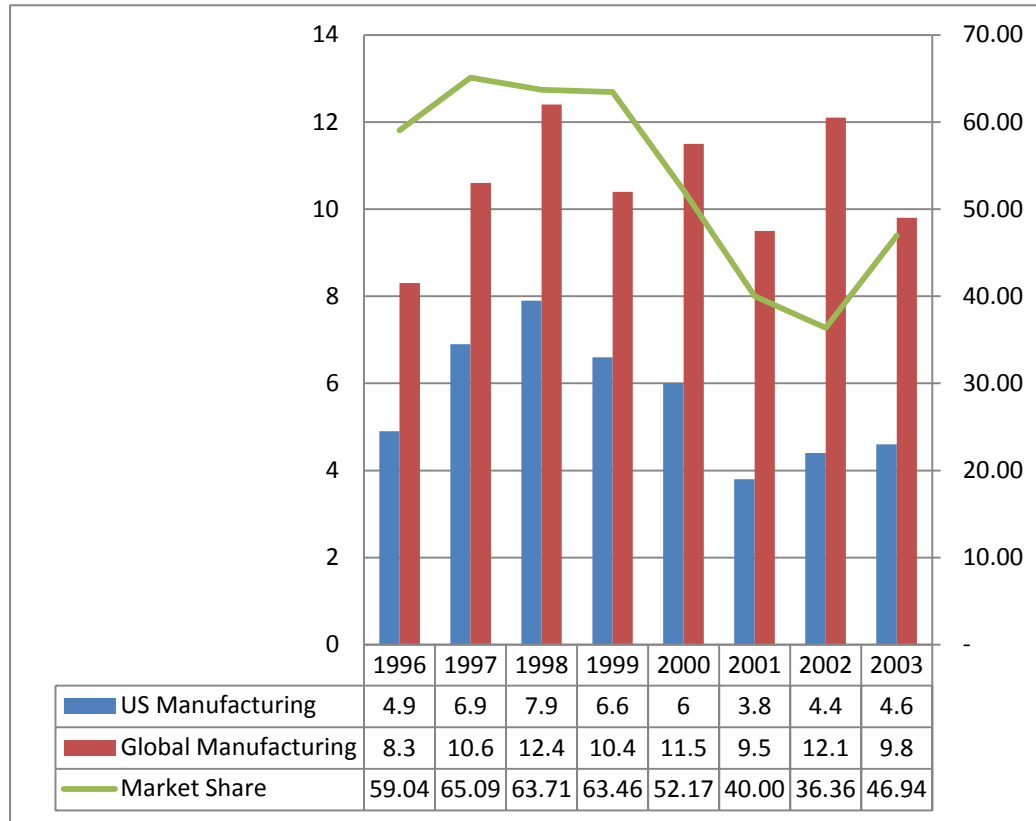
Figure 4.4: Global Satellite Industry Revenue by Sector



Source: Satellite Industry Indicators Survey of 2003

The satellite manufacturing sector shows no consistent trend in global revenue (Figure 4.5). However, while U.S. manufacturing revenue accounted for more than 50 percent of world revenues until 2000, it has not been restored to pre-2000 levels since 2001. The average revenue for the U.S. during 2001-2003 decreased by 35 percent compared to the previous years, 1996-2000. In fact, U.S. revenue began to drop steadily since 1998 and rather drastically in 2000-2001, compared to the decrease in world revenue. A plausible explanation is that unlike the early 1990s when the U.S. dominated the satellite market, competition among global satellite manufacturers increased in the 2000s so that Chinese launch projects were no longer so reliant on U.S. firms and instead could acquire satellites from other states.

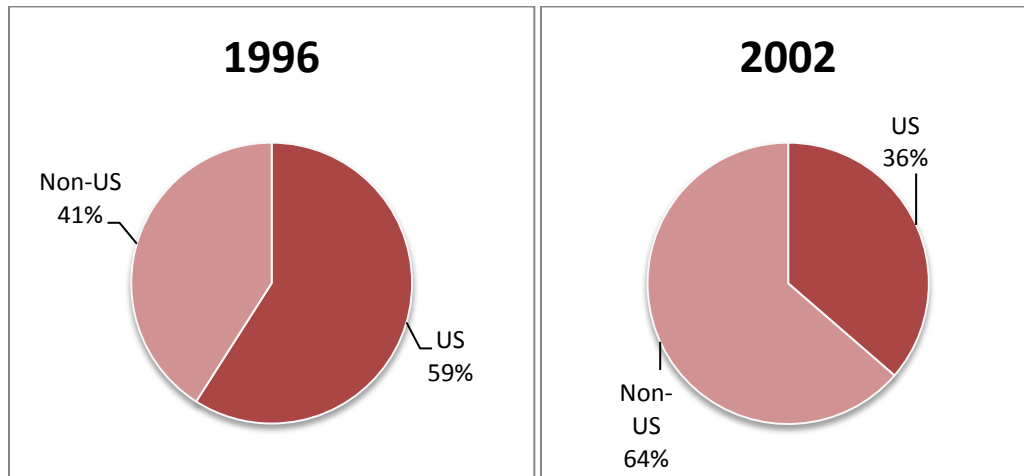
Figure 4.5: U.S. Market Share in the Satellite Manufacturing Sector



Source: Satellite Industry Indicators Survey of 2003

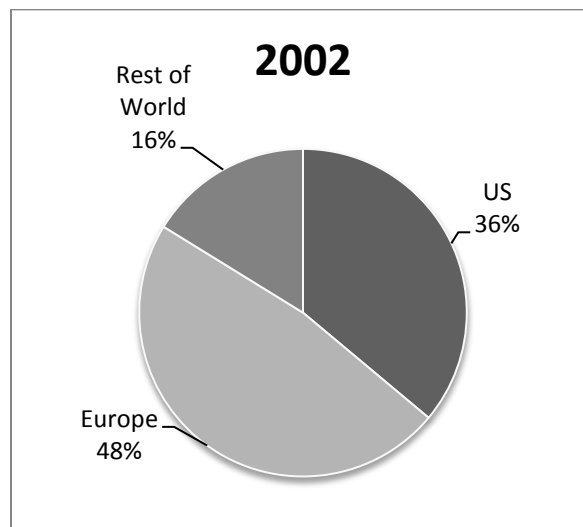
Figure 4.6 shows that U.S. global market share in the manufacturing sector decreased from 59 percent in 1996 to 36 percent in 2002, while market share for non-U.S. manufacturers increased from 41 percent in 1996 to a high 64 percent in 2002. Figure 4.7 further demonstrates that among foreign competitors, European firms have gained a substantial portion of global market shares.

Figure 4.6: U.S. vs. Non-U.S. Manufacturing Revenue



Source: Satellite Industry Indicators Survey of 2003

Figure 4.7: Manufacturing Market Share by Region 2002



Source: Satellite Industry Indicators Survey of 2003

The enhanced competitiveness and increasing stakes of European firms in the global satellite market could have been driven by fewer controls on commercial space and space related items. The U.S. formally sanctioned the export of commercial satellites to China, which was only waived on a case-by-case basis by the President.<sup>122</sup> However, the EU did not impose such sanctions and permitted

<sup>122</sup> 902 of the Foreign Relations Authorization Act, Fiscal Years 1990 and 1991.

European commercial satellites to be launched by the Chinese and sold to the Chinese for operation, as long as the exports satisfied standards established under Council Regulation (EC) No. 428/2009 (Wetter 2009). The policies of the U.S. and the EU also diverged on how commercial satellites were categorized. While the U.S. categorized commercial satellites as munitions, the EU categorized them as dual-use products, which called for different treatment throughout the export licensing process and in efforts to enforce the rules. As a result, U.S. satellite exports were subject to more restrictions on export and re-export, required more processing time, and U.S. licensing applicants were financially responsible for licensing and monitoring fees. Thus far, the U.S. is the only country that controls the re-export of foreign-origin satellites containing U.S.- origin satellite-related items.<sup>123</sup> Moreover, U.S. manufacturers were subject to more stringent rules and monitoring regarding communications with foreign nationals during the bidding, purchase, manufacturing, financing, insurance, launch, and post-launch stages of a satellite procurement process (Maniera 2005, 69-70).

In sum, due to the rise of foreign competitors amidst unfavorable global market conditions in the satellite manufacturing sector, the stakes of U.S. satellite manufacturing firms decreased from dominant to moderate levels. The theory predicts that senders would be less likely to strongly enforce when its firm's stakes are high or low in the target's market, either because sanctions are rendered unenforceable or for fear that it might lose influence in the market. Thus, senders would be more likely to enforce sanctions when its stakes are moderate. Evidence from the case shows that the U.S. government's decision to investigate and punish its firms for engaging in technology transfers to China in 1998 coincided with when its stakes had reached moderate levels.

Despite increased competition in the satellite industry, China's collaboration with U.S. firms could not be easily substituted by other foreign firms since only a handful of countries had the skills to manufacture satellites and the majority of foreign firms relied on U.S. components. In fact,

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<sup>123</sup> Departments of Defense and State. Report to Congress. Section 1248 of the National Defense Authorization Act for Fiscal Year 2010 (Public Law 111-84): Risk Assessment of United States Space Export Control Policy. March 15th, 2012.



competition among American firms such as Hughes, Loral and Lockheed Martin was more aggressive than between U.S. and foreign firms in the Chinese market. According to the theory, if sender- target transactions are easy to substitute, the target will be relieved of some of the sanctions costs, making it unlikely to acquiesce to the sender's demands. If the probability of successfully coercing the target is low, the sender would prefer not to waste resources on enforcement, and may even decide not to impose sanctions. However, when the target's transactions with the sender are difficult to replace, sanctions has a chance to accomplish its policy goals. Hence, the sender will have incentives to strongly enforce sanctions, which increases the chance of sanctions success. The case supports this proposition.

### **U.S. Firms and Russian Satellite Launch Services**

In the late 1980s, when the U.S. shuttle program was cut back drastically following the Challenger explosion, U.S. firms began taking satellites to Russia as well as China to utilize their launching facilities. At the time, Russia was sanctioned by the U.S. with a goal to impair its military potential (Hufbauer et al. 2007). The Bush administration negotiated a deal with Russia and permitted firms such as Loral Space Systems, Lockheed Martin and Boeing to enter into joint ventures with Russian satellite launching firms. In September 1993, the Clinton administration renegotiated the agreement to provide for eight payloads in the next five years with not more than two taking place within a year. The price could not be more than 7.5 percent below U.S. prices.<sup>124</sup> Launching satellites from Russia provided similar benefits as launching from China, such as opening foreign markets to U.S. satellite manufacturers. In 1995, an interagency task force under the Clinton administration pushed for continuing the quota system and adding Ukraine, which also had its own space launch rocket. The focus remained on maintaining U.S. capabilities to construct satellites and delegating launching to foreign vehicles. "As long as U.S. national security is protected by our ability to build launchers for

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<sup>124</sup> Pincus, Walter. 1998. "Satellite Launches were Forced Abroad." Washington Post. July 15.

our own military programs, the answer was ‘no’ to the question of whether we should care about launches abroad.”<sup>125</sup>

In December 1997, a Russian-made Proton rocket crashed before putting into orbit a satellite made by Lockheed Martin that was purchased by China. The Russians conducted their own investigation of the failure and only shared part of the report with Lockheed citing concerns that the U.S. would acquire new technology. On receiving the report, the State Department prohibited Lockheed from sharing it with the Chinese, who had contracted with the U.S. firm for the launch. Despite the potential transfer of technology from Russia to China via the U.S., Russia was hardly mentioned during the testimony before the House and the Senate in 1998. It is worth considering why this was the case. Due to the exclusiveness of satellite technology, substitutability of U.S. - Russia transactions was quite low. However, as the Russian space launch program was more than three times larger than that of China and due to increasing demand for foreign launch services, American firms had a high stake in the Russian market. For instance, eighteen of Russia’s 48 satellite launches were for U.S. firms in 1997. Short of funds, the Russian Space Agency was also eager to launch satellites for China, Germany and Luxembourg, worth \$60 to \$100 million each, which resulted in increased competition to supply the Russians with satellites.<sup>126</sup> The stake was particularly high for Lockheed, which had entered into a joint-venture in 1995 with Lockheed Khrunichev Energia International to create a stock company, International Launch Services (ILS), which capitalized on the rocket technology of the former Soviet space industry and provided launch services on the Proton.<sup>127</sup> Based on such investment, ILS successfully marketed Atlas and Telstar-5 to the global satellite launch market and Lockheed emerged as a potential challenger to the leading French firm, Arianespace, in

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<sup>125</sup> Comments from the Pentagon. Ibid.

<sup>126</sup> Myers, Laura. 1998. “U.S. may permit Russia more foreign satellites.” Associated Press. March 9.

<sup>127</sup> Fitchett, Joseph. 1997. “U.S. Companies Challenge Dominance of Arianespace.” International Herald Tribune, June 17.

the satellite launch business.<sup>128</sup> In all, such conditions were not appropriate to induce strong enforcement of sanctions on the U.S. firm.

### **U.S. Enforcement of Sanctions on its Firms in China's Automobile Market**

The beginning of China's auto industry was humble as it did not have the much needed pre-World War II manufacturing experience to offer enough confidence to foreign investors. It emerged from converted defense industrial enterprises that were outdated and the Chinese government was eager to recruit foreign investors to build and modernize the industry.<sup>129</sup> After Mao Zedong's successful communist revolution, China formed ties with the Soviet Union to receive technical assistance and built China's First Auto Works (FAW) in 1953 in the city of Changchun, which began to produce basic model automobiles. However, this alliance ended in 1960 when Mao ended all foreign technology transfers into China and the auto industry was isolated from the world. During the Cultural Revolution (1966-1971), there was no investment in the automobile industry (CATARC 2002). When China re-opened its doors to the world in the 1970s, the government realized its firms' lack of expertise could not match the rising demand for vehicles and resolved to work with foreign firms through joint ventures. This would help acquire advanced technology, capital and managerial skills to develop domestic manufacturing. As a result, total investment in the industry, including foreign capital inflows, climbed from \$64 million in the sixth Five-Year Plan period (1981-1985) to \$0.87 billion in the eighth period (1991-1995). During the ninth and tenth Five-Year Plans (1996-2005), total investment in the auto sector amounted to \$23.5 billion, 0.71 percent of total national investment (China Automotive Yearbook 2004).

Entering the 1990s, the Chinese leadership recognized the strategic importance of the auto industry given the upstream technologies required in the manufacturing process and designated it to

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<sup>128</sup> "Proton Rocket Successfully Launches Telstar-5 Communications Satellite." Financial News, May 24, 1997.

<sup>129</sup> BEA report 1999, p. 46.

be one of China's "pillar" industries.<sup>130</sup> The ultimate goal of the auto industry was to groom the top eight Chinese auto companies partnering with foreign firms and create a Chinese version of the "Big Three" American automobile manufacturers including Ford Motor Company, Chrysler and General Motors.<sup>131</sup> China published its "Automotive Industry Industrial Policy" in July 1994, which was the first attempt by the government to provide more transparent investment guidelines for prospective investors. It made clear that the goal was to acquire foreign technology and reinforced the government's leverage and control over the industry and foreign investors (Table 4.8).

Table 4.8: Requirements for Establishing Auto Manufacturing Joint Ventures in China

<b>Research and Development:</b>  "An office responsible for technological research and development must be set up within the enterprise. The office will have the capacity to update products."	<b>State-of-the-art Technology:</b>  "The enterprise must have a capacity for manufacturing products which attain the international technological levels of the 1990s."
<b>Foreign Exchange:</b>  "The joint venture enterprise will obtain the foreign exchange it needs mainly through exporting its products."	<b>Local Content:</b>  "The joint venture must give priority to locally-made spare or component parts when they need them."

Source: Article 31, Chapter Six: Policy on Using Foreign Funds. China's 1995 Auto Policy.

### U.S. National Security Concerns for High-Technology Transfers to the Chinese Auto Industry

As of 2002, in addition to the export controls previously discussed, China was among several countries on the Embargo Reference Chart controlled by the U.S. Defense Department (Table 4.9). Specifically, sanctions were under Federal Regulations that suspended "defense articles and defense

<sup>130</sup> The Chinese government had selected several pillar industries in 1987, which included machinery, electronics, petrochemicals, automobiles and construction materials. Expected to be the engine of China's economic growth, these industries would receive favorable government support such as easier access to capital and priority approval to enter into joint ventures and build technical centers for research and development.

<sup>131</sup> "China to Use Example of Big 3," *China Daily Business Weekly*, March 2, 1997 in *China Commercial Quarterly*, John Hendryx and Jeffrey Shih, eds., December 10, 1996 to April 1997.

services” exports to China on June 5, 1989 and Amendment 126.1 to the International Traffic in Arms Regulations, which prohibited exports and sales of “defense articles, defense services or technical data” to China and other countries. Technology transfers that could assist China in developing military infrastructure or engage in proliferation activities were banned for national security reasons, unless granted a special waiver.

Table 4.9: U.S. Defense Trade Controls: Embargo Reference Chart

54FR 24539 Suspension of Munitions Exports to PRC	“Notice is hereby given that all licenses and approvals to export defense articles and defense services from the United States to the People’s Republic of China pursuant to section 38 of the Arms Export Control Act are suspended effective immediately.” (Effective Date: June 5, 1989)
58FR 39280 Amendments to the International Traffic in Arms Regulations	<p>Section 126.1 Prohibited Exports and Sales to Certain Countries.</p> <ul style="list-style-type: none"> <li>(a) It is the policy of the United States to deny licenses, other approvals, exports and imports of defense articles and defense services, destined for or originating in certain countries.</li> <li>(b) Shipments. A defense article licenses for export under this subchapter may not be shipped on a vessel, aircraft, or other means of conveyance which is owned or operated by, or leased to or from, any of the proscribed countries or areas.</li> <li>(c) South Africa. South Africa is subject to an arms embargo ...</li> <li>(d) Terrorism. Exports to countries which the Secretary of State has determined to have repeatedly provided support for acts of international terrorism are contrary to the foreign policy of the United States...</li> <li>(e) Proposed sales. No sale or transfer and no proposal to sell or transfer any defense articles, defense services or technical data subject to this subchapter may be made to any country referred to in this section, or to any person acting on its behalf, whether in the United States or abroad, without first obtaining a licenses or written approval of the Office of Defense Trade Controls.</li> </ul>

Source: US Department of State. [http://www.pmddtc.state.gov/embargoed\\_countries/index.html](http://www.pmddtc.state.gov/embargoed_countries/index.html).

From the U.S. perspective, the transfer of high-technology to China was not only likely to threaten its firms’ competitiveness in the host market, but also raised concerns about national security since some of the technologies used in manufacturing automobiles or parts could later be applied to enhancing military infrastructure. As China’s domestic auto industry had been converted from

defense industrial enterprises, there was no guarantee that the newly acquired technology would not be used to modernize the military. Moreover, the authority to make decisions regarding arms sales in China resided with two specialized corporations that enjoyed autonomy from the Foreign Ministry due to their personal connections to the Communist Party.<sup>132</sup> Therefore, even with cooperation of the Chinese government, it would be difficult to regulate arms-related technology being transferred to third parties.

In addition, China's record of proliferating nuclear and missile technology to Iran, India, Pakistan and Syria did not offer any extra assurance. Chinese firms were first caught secretly selling Pakistan M-11 missile components in 1991. This triggered U.S. missile-technology export bans in June 1991 against two Chinese suppliers, the China Great Wall Industry Corporation (CGWIC) and the China Precision Machinery Import-Export Corporation, and to Pakistan's space agency, the Space and Upper Atmosphere Research Commission (SUPARCO). By December 1992, the press reported that China had just shipped roughly two dozen M-11 missiles to Pakistan.<sup>133</sup> Initially, the punishment were to last for at least two years, but the penalties were waived less than a year later in March 1992, after China promised it would abide by the guidelines of the Missile Technology Control Regime (MTCR). In August 1993, the Clinton administration determined that China had shipped M-11 equipment and technology to Pakistan and banned the sale of U.S. missile-related technology to Pakistan's Ministry of Defense and to ten Chinese firms. However, sanctions were once again lifted against the Chinese firms in October 1994, when the Chinese government pledged to stop its missile sales.<sup>134</sup> It may or may not have been a coincidence that Hughes electronics, the U.S. firm that had

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<sup>132</sup> Mihollin, Gary and Gerard White. 1991. "A New China Syndrome: Beijing's Atomic Bazaar." *Washington Post*, May 12.

<sup>133</sup> "China's Missile Sales to Islamabad Worry Washington." *The Risk Report* 1(4). May 1995. The Wisconsin Project.

<sup>134</sup> *Ibid.*

been penalized for conveying satellite technology to China, was a subsidiary of General Motors that provided auto parts and components to its joint ventures in China.

Meanwhile, China's appetite for cutting-edge foreign technology continued to increase, with Chinese partners constantly complaining that foreign automakers were reluctant to share core technology and process knowledge, more interested in increasing the return on their investment rather than developing the joint venture. The following statement from a Chinese government interviewee sums this point: "Though the stock-holding proportion is equal, the Chinese side has little control or power [over] the technical aspects. Developing our own intellectual property is something our country advocated and expected through these joint ventures, but there has been little substantial progress."<sup>135</sup>

### **U.S. Firms in China's Automobile Market**

Several American auto firms, otherwise known as the "Big Three," were eager to enter the Chinese market due to its projected market potential and low labor costs. However, when challenged with tough bargaining over the terms of the contract, the firms expressed varying levels of commitment. Chrysler was one of the first companies to enter China when it acquired the joint venture with American Motors Corporation (AMC) and China, known as the Beijing Jeep Corporation, in 1987. When AMC originally initiated the joint venture in 1983, it had provided \$16 million, half of which was the contribution of technology. Chrysler's production and sales of the Jeep Cherokee and BJ2020 was successful for ten years, but it pulled out on its bid on a \$1 billion minivan deal in 1995 when it lost to Mercedes-Benz. The project was expected to produce 60,000 minivans and 100,000 engines a year, the single largest automobile deal of the decade.<sup>136</sup> At the time, most American car manufacturers, including Chrysler, were reluctant to bring up-to-date technology to China since they

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<sup>135</sup> "Inside China: The Chinese View Their Automotive Future ." November 30, 2005. IBM Business Consulting Services with the University of Michigan, Office for the Study of Automotive Transportation.

<sup>136</sup> <http://factsanddetails.com/china.php?itemid=360&catid=9&subcatid=61#05>.

were well aware of its ambitions and often chose to introduce models and manufacturing methods at least ten years old. In fact, there is evidence that disagreement on the terms of technology transfer and exports had pulled the deal away from Chrysler. Chinese representatives first demanded that Chrysler transfer all technology needed to manufacture the minivan, and right before signing the final contract, suddenly unveiled a list of demands including a request for immediate rather than phased investment of the promised \$1 billion, to export Chrysler's vans and components without paying any license fees, and to delete intellectual-property protections from the contract.<sup>137</sup> It was reported that Robert J. Eaton, Chairman of Chrysler, expressed concerns over the idea of potential illicit technology transfers and that he was shocked to find counterfeit versions of its Jeep on the streets of Beijing. When confronted with the issue, the Chinese response was, "We're developing an auto industry, and you should help us."<sup>138</sup> Chrysler called the deal off when the Chinese claimed that Mercedes-Benz agreed to the terms of technology transfer. This was in part because minivans were the main cash cow for Chrysler and it had much more to lose compared to Mercedes, where minivans were not the priority. By 1999, Chrysler announced it did not have any plans to expand investment in the Chinese market (Table 5.9).

General Motors pursued a more high-risk and aggressive strategy than any of its U.S. competitors. According to Chairman John F. Smith Jr., General Motors aimed to be a long-term player by building a presence in China with the Chinese, for the Chinese, "not a U.S. company in China."<sup>139</sup> Its influence dated back to the early 1920s when General Motors exported Buicks to the mainland and set up its first dealership in Shanghai in 1929. In 1997, the company won a bid to produce Buick Sedans with the Shanghai Automotive Industry Corporation (SAIC) and later added a

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<sup>137</sup> Templeman, John and David Woodruff. 1995. "How Mercedes Trumped Chrysler in China." *Business Week*, July 31.

<sup>138</sup> *Ibid.*

<sup>139</sup> Smith, Craig S. and Rebecca Blumestein. 1998. "GM makes an uneasy tradeoff in China. It wants access to an immense market. But Beijing wants access to its technology." *Wall Street Journal*, February 11.



second joint-venture with Wuling Automotive. By 1998, the firm planned to put in at least US\$2 billion into China in the upcoming years, despite concerns about consumers not being able to afford the vehicles produced and China's aspirations to build its own cars. During negotiations for the Buick Sedan deal, General Motors was criticized to have "offered more than any other foreign automotive firm ever has for a slice of a Chinese joint venture that is not yet even approved...GM won a 50 percent stake in a US\$1 billion joint venture to make a two-liter variant of its Buick sedan by offering what other automotive multinationals were loathe to... The company will license a broad range of component technologies through a series of joint ventures with state-owned companies... In addition, GM has thrown in other technology transfer sweeteners that are not linked to individual productive ventures. The American auto giant has pledged US\$40m for five technology training institutes, with promises of significant technology transfers in electronics via its Hughes Electronics subsidiary and in information technology via its Electronic Data Systems subsidiary."<sup>140</sup>

Indeed, General Motors was the first to build a technical center with additional investments in Shanghai, following the Chinese government's 1994 auto policy that promoted foreign technology transfers. The company established a joint venture worth US\$50 million with SAIC separately to create the Pan Asian Technical Center (PATAC). Its main purpose was to provide engineering support to the joint venture and other Chinese firms. PATAC was not mandated to train Chinese engineers, but it gave them the opportunity to work closely with advanced technology. In addition, several subsidiaries of General Motors such as Delphi Automotive Systems, Delco Electronics, Hughes electronics, and Electronic Data Systems expanded into joint ventures to manufacture auto components and parts.<sup>141</sup>

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<sup>140</sup> "No Price Too High," Business China, August 19, 1996.

<sup>141</sup> BEA Report 1999, p. 51.

Table 4.10: The Development of Joint Ventures in China's Auto Industry

Year	Joint-Venture	Chinese Firm	Affiliated Foreign Firms
Jan 1984	Beijing Jeep Corporation (BJC)	Beijing Automobile Industry Corporation (BAIC)	American Motors Corporation (AMC), Chrysler (1987), DaimlerChrysler (1999)
Oct 1984	Shanghai Volkswagen	Shanghai Automotive Industry Corporation (SAIC)	Volkswagon
1990		First Auto Works (FAW)	Volkswagon
1990		Dongfeng Auto Company	Citroen
	Guangzhou Peugeot	Guangzhou Automobile Company	Peugeot
1993	Chongqing Chang'An Suzuki	Chongqing Chang'An Automobile Group Company Ltd (Chang'An)	Suzuki
1995	Ford Motor China Ltd	Chongqing Chang'An Automobile Group Company Ltd (Chang'An)	Ford (holding 30 percent stake in Jiangling Motors Corporation)
1997	Guangzhou Honda	Guangzhou Automobile Company	Honda took over Peugeot.
1997	Shanghai General Motors	Shanghai Automotive Industry Corporation (SAIC)	General Motors
1997	Pan Asia Technical Center (PATAC)	Shanghai Automotive Industry Corporation (SAIC)	General Motors
2002	Beijing Jeep Corporation (BJC)	Beijing Auto Holding Company (BAHC)	Hyundai Motor Company (of which DaimlerChrysler owned 10.46 percent)

Source: Various News Articles.

Ford was the last of the Big Three to manufacture passenger cars in China and was much less committed to expand business in the Chinese market. Despite its early involvement with China by exporting its Model-Ts in 1913, it only acquired a 30 percent stake of Jiangling Motors Corporation in 1995 where it licensed the Transit bus technology for domestic production.<sup>142</sup> To complement the deal, Ford established two research and development centers and two labs in several prestigious universities to facilitate computer-aided product design and employee training.<sup>143</sup>

<sup>142</sup> <http://factsanddetails.com/china.php?itemid=360&catid=9&subcatid=61#06>.

<sup>143</sup> BEA report, p. 51.

Table 4.11: Joint Ventures in China's Auto Industry 2002

Foreign Firms	Joint Ventures/ Technical Cooperative	Core Products	Description
General Motors	Shanghai GM	Economy/intermediate cars	Joint-venture (JV) between GM (50%) and SAIC (50%).
	GM Shanghai Dongyue Auto Co.	Economy cars	JV among GM (25%), SAIC (25%), and GM Shanghai (50%).
	Chongqing Chana-Suzuki	Economy cars	JV between Chana and Suzuki. GM has 20% of shares.
	Nanjing Nanya	Economy cars	JV between Nanjing Auto Group and Fiat. GM has 20% of Fiat shares.
	Guizhou Lark	Mini cars	JV between Guihang Group and Fuji Heavy Industry (GM holding 21% of Fuji shares).
Volkswagon	Shanghai VW	Economy/medium-end cars	JV between VW (50%) and SAIC (50%).
	FAW VW	Compact/intermediate cars	JV among VW (30%), Audi (10%), and FAW (60%).
	Anhui Chery	Economy cars	A technical cooperative enterprise between VW and Chery.
Ford	Changan Ford	Economy cars	JV between Ford (50%) and Changan (50%).
	FAW Hainan	Medium-end cars	JV between FAW and Mazda (Ford holding 33.4% of Mazda share).
	FAW	Medium/high-end cars	A cooperative enterprise between FAW and Mazda (Ford has 33.4% of Mazda share).
Toyota	Tianjin Toyota	Economy/intermediate cars	JV between Toyota (50%) and FAW (50%).
	FAW Xiali	Mini and economy cars	A cooperative enterprise between Toyota (Daihatsu) and FAW Xiali.
DaimlerChrysler	Beijing Jeep	Intermediate off-road vehicles	JV between DaimlerChrysler and Beijing Automotive Industry Co (BAIC).
	South East (Fujian)	Economy cars (in negotiation)	JV between DaimlerChrysler (through its holding company Mitsubishi) and Fujian Auto Group.
	Beijing Hyundai	Economy/intermediate cars	JV between Hyundai (where DaimlerChrysler has shares) and BAIC.
	DongfengYueda Kia	Economy cars	JV between DFAC, Yueda Investment and Kia (a

			subsidiary of Hyundai).
Renault-Nissan	Fengshen Auto	Series cars	JV between Renault-Nissan and DFAC
	DFAC (Wuhan)	Series cars	A would-be JV between DFAC (50%) and Nissan (50%).
PSA/Citroen	Dongfeng Citroen Auto (Wuhan)	Compact/intermediate cars	JV between PSA and DFAC.
Honda	Guangzhou Honda	Economy/intermediate cars	JV between Honda and Guangzhou Auto Group.
	Guangzhou Honda for export	Economy cars	JV among Honda, DFAC and Guangzhou Auto Group.
BMW	Brilliance Auto Co. Ltd	Medium/end cars	A cooperative enterprise between BMW and Golden Cup.

Source: China Automotive Technology & Research Center, 2003.

### Weak Enforcement

The following is an illuminating example of weak enforcement. In June 2003, General Motors began an investigation on allegations that SAIC Chery Automobile Co. may have copied the design of the Matiz, produced by GM Daewoo Automotive & Technology Co. in South Korea, in building their own subcompact car, the QQ minicar. Chery had been founded in 1997 as a majority owned firm by the local Anhui government, and had become China's own success story in auto manufacturing, selling approximately 50,000 vehicles in 2002 and reaching a 79 percent yearly increase.<sup>144</sup> Its growth was partly indebted to SAIC that had a 20 percent stake in the firm and helped obtain government licenses and establish sales networks. General Motors had received a tip that Chery was producing a vehicle that closely resembled its Chevrolet Spark, which was the rebranded version of the Matiz for the Chinese market, several months before the actual Spark launch. After the Shanghai Auto Show in April 2003, where the QQ minicar was to be revealed but was pulled from the runway last minute, the Chinese state media began to report the similarities between the QQ and Chevrolet Spark which prompted investigations on behalf of General Motors.<sup>145</sup>

<sup>144</sup> McGregor, Richard. 2003. "Chery defends using features of rival cars." Financial Times, June 19.

<sup>145</sup> Leggett, Karby. 2003. "GM suspects Chinese rival copied." Korea Herald. June 20.

Chery's dispute with General Motors was not the first of its kind that involved intellectual property rights. Volkswagen had found pirated parts being used by Chery in 2001, after which Chery paid Volkswagen a cash settlement.<sup>146</sup> In late 2002, Toyota Motor Corporation of Japan also filed a lawsuit against Geely Auto Group, another private Chinese auto company, for trademark infringement. However, legal and political barriers were anticipated in suing Chery for piracy, as the General Motors case received much attention of foreign firms, the Chinese as well as the U.S. government. By December 2003, General Motors announced "solid findings" had emerged from the investigations and the Chinese government indicated that it wanted to avoid litigation involving General Motors, who was an important investor.<sup>147</sup> In June 2004, General Motors still had not decided to sue Chery, claiming it was a "complex issue," and denied it had refrained from taking drastic legal measures as it feared it would damage its business in China.<sup>148</sup> Instead, SAIC returned its 20 percent stake of Chery to the Anhui company and the case was terminated.<sup>149</sup> When General Motors was prompted to investigate Chery for pirating its auto designs in 2003, it conducted an internal inquiry and stopped short of taking any drastic legal measures against the Chinese firm. The absence of any official report of illicit transactions or involvement of U.S. government in investigations is evidence of weak enforcement. This decision is likely to have been influenced by its firms' low stakes in the Chinese market and the ease to which the Chinese could substitute its transactions with U.S. auto firms with partnerships with other foreign firms. The next section examines this in detail.

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<sup>146</sup> McGregor, Richard. 2003. "Carmaker in thicket after picking fight with Chery: General Motors faces legal and political issues over piracy." *Financial Times*, December 13.

<sup>147</sup> *Ibid.*

<sup>148</sup> McGregor, Richard. 2004. "Chery probe comes to end piracy." *Financial Times*. June 8.

<sup>149</sup> McGregor, Richard. 2004. "SAIC severs links with Chery China." *Financial Times*. June 14.

### **Market Conditions Preceding Weak Enforcement: Low Stakes, High Substitutability**

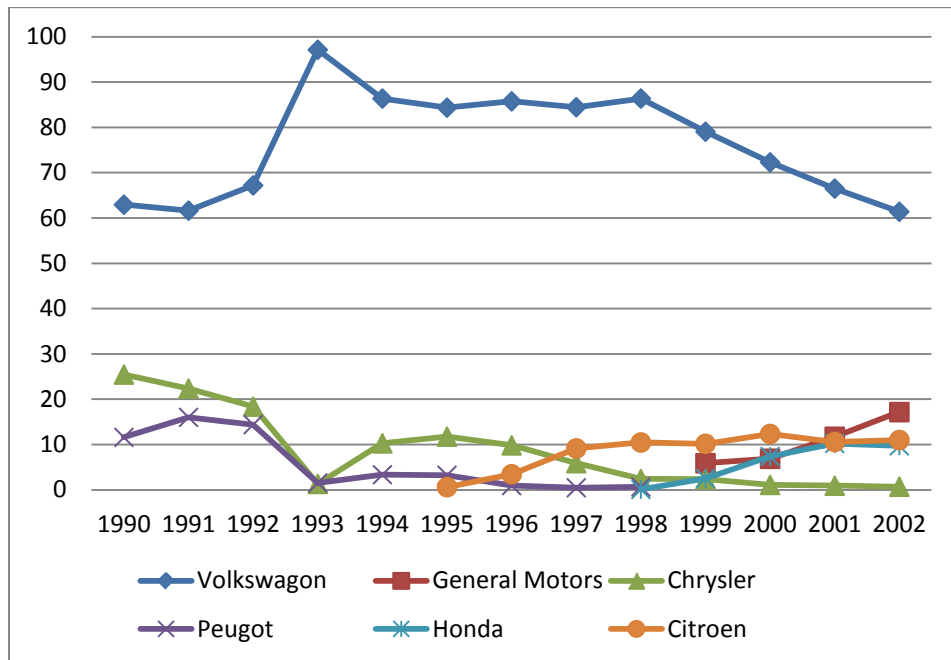
Both domestic and foreign investment in China's automobile industry began in earnest during the 1980s. However, substantial growth in production and sales was not realized until the mid-1990s. Despite the early entry of U.S. firms into the Chinese market, numerous foreign competitors formed similar partnerships with Chinese firms and quickly began crowding the market. By 2002, the composition of the Chinese auto market was internationally diverse - there were more than 40 auto brands and over 200 models, among which new models accounted for more than 60 percent of market shares (CAAM 2002). Furthermore, as foreign investment expanded into auto component manufacturing, the market became more fragmented. Chinese efforts to develop indigenous auto firms were also successful that by 2001, Chinese car manufacturers such as the Geely Group, Brilliance China, and Shanghai Chery entered the market to compete with the foreign auto firms.

High levels of competition resulted in declining sales and short product life-cycles that prevented manufacturers and suppliers from reaching economy of scale. By 1998, heavy regulation and an economic downturn slowed down sales as firms competed to increase production capacity. Unable to compete, Chrysler shut down its offices in China and Peugeot-Citroen closed its factory.<sup>150</sup> This forced firms to spend more on research and development and rely on a shared supplier network. For instance, General Motors built its facilities in Shanghai because an auto supply network between SAIC and Volkswagon already existed.

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<sup>150</sup> Smith, Craig S. and Rebecca Blumestein. 1998. "GM makes an uneasy tradeoff in China. It wants access to an immense market. But Beijing wants access to its technology." Wall Street Journal, February 11.

Figure 4.8: Market Share of Major Global Automakers  
(percent of market share in China)



Source: Data for 1990-1999 from Harwit 2001; 2000-2003 from Francois & Spinanger 2004.

As a result, U.S. firms' stake in the Chinese market was low. Figure 4.8 shows the market share of major foreign auto manufacturers in China during 1990-2002. Volkswagon of Germany was by far the most influential during this time, although General Motors' market share began to increase just as Volkswagon's share began to decrease. The shares of Chrysler continued to decrease while sales for Citroen, France, picked up in the late 1990s. The declining shares of Peugeot, France, were overtaken by Honda, Japan, which began to increase sales in the late 1990s. Overall, the figure shows that several major firms from different countries were competing against each other, which reduced the dependency of China on transactions with any one of its partners, including U.S. firms. Table 4.12 ranks the market shares of major auto joint-ventures in China, which further illustrates how competitive it was for firms to increase sales of their key products.

Table 4.12: Major Passenger Car Models 2003

Producer	Brand	Technology Origin	Sales Unit	Market Share (%)
FAW-VW	Jetta	VW, Germany	153,916	6.88
SAIC-VW	Santana	VW, Germany	132,719	5.93
FAW-Tianjin	Xiali	Daihatsu, Japan	112,919	5.05
Guangzhou Honda	Accord	Honda, Japan	105,387	4.71
Beijing Honda	Elantra	Hyundai, Korea	102,749	4.59
SAIC-GM	Excelle	GM, USA	92,225	4.12
SAIC-VW	Santana 2000	VW, Germany	90,339	4.04
SAIC-VW	Passat	VW, Germany	74,877	3.35
SAIC-GM	Regal	GM, USA	72,903	3.26
FAW-VW	Bora	VW, Germany	63,283	2.83
Guangzhou Honda	Jazz	Honda, Japan	59,303	2.65
SAIC-GM	Sail	GM, USA	57,839	2.59
Chang'an Suzuki	Flyer	Suzuki, Japan	55,854	2.50
DongfengYueda Kia	Qianlima	Kia, Korea	55,781	2.49
Geely	Haoqing	Chinese	55,189	2.47
Chang'an Suzuki	Swift	Suzuki, Japan	54,198	2.42
FAW-Mazda	Family	Mazda, Japan	53,205	2.38
Chery	QQ	Chinese	49,366	2.21
FAW-VW	Audi A6	VW, Germany	46,177	2.06
FAW-Toyota	Crown	Toyota, Japan	45,654	2.04
Total			1,533,883	68.57

Source: China Automotive Industry Yearbook 2003

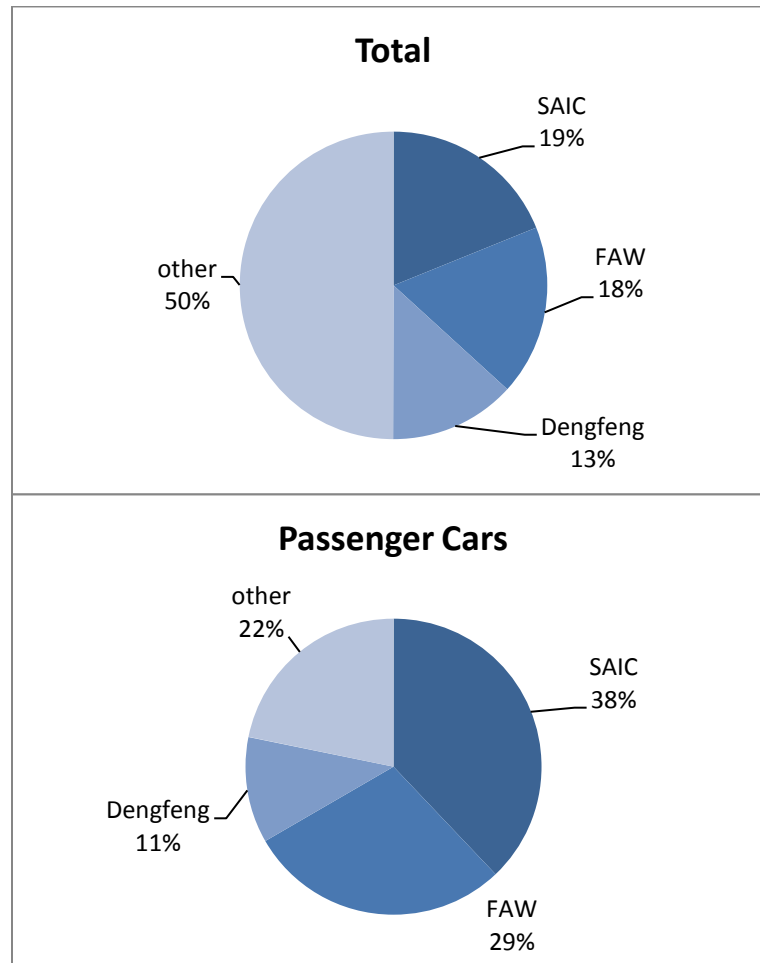
A related, critical development was the emergence of local Chinese business groups that were essentially a coalition of firms, intertwined with complex legal, administrative, financial, and transactional ties under the control of a core firm (Kister 1998). The members of these business groups included both state-owned and joint-venture firms and each had its own technical center. By 1997, more than 2000 local business groups were established and accounted for more than 50 percent of assets and 45 percent of revenue of all industrial enterprises in China (Zhao et al. 2005). Among them, the Chinese government selected 120 groups to be the “core” business groups, which were distributed across the pillar industries (Yin and Zang 1999). As the government loosened its control over the auto industry, these core business groups played the role of intermediary between the state



and private firms and were able to impose much administrative influence over member firms (Zhao et al. 2005). Twenty-one of these business groups were in the automobile industry, which represented over 90 percent of total Chinese automotive firms and revenues (China Automotive Industry Yearbook 2003).

The three main business groups in the Chinese auto industry were the Shanghai Auto Industry Corporation (SAIC), the First Auto Work Group (FAW) and the Dongfeng Group. Due to the low capacity of local producers, these three groups entered into multiple joint ventures with foreign firms of their choice, which gave them a much stronger bargaining leverage over their partner firms and fueled intense rivalries among foreign competitors. Since the Chinese business groups established similar contracts with their foreign partners, firm transactions were relatively easy to substitute. Figure 4.9 shows how much influence these business groups had in the Chinese auto market. If we consider the passenger car market alone, the three business groups held 78 percent of market shares, and in the case of the market for all products, the business core groups accounted for 50 percent.

Figure 4.9: Market Share of the Top 3 Business Groups 2002



Source: China Automotive Technology & Research Center, 2003.

Table 4.13 shows the market share for each joint venture enterprise partnering with SAIC, Dongfeng and FAW. Other than SAIC-VW and FAW-VW, each producer had comparable market share. This indicates that U.S. firms' stake in the Chinese market was low, as it was merely one of many firms partnering with China's core auto business groups.

Table 4.13: Top 3 Business Groups in the Chinese Auto Sector 2003

Producer	Foreign Firm	Capacity	Market Share (%)	Description
<b>SAIC Group</b>			<b>26.94</b>	
SAIC-Chery	Daewoo	60,000	2.01	SAIC holds 20% of shares but not involved in management
SAIC-GM	General Motors	150,000	5.02	SAIC holds 50% of shares
SAIC-Wuling	General Motors	150,000	4.86	
SAIC-VW	Volkswagon	450,000	15.05	SAIC holds 25% of shares
<b>Dongfeng Group</b>			<b>10.71</b>	
Dongfeng Honda	Honda	60,000	2.01	
Dongfeng PSA	PSA/Citroen	150,000	5.02	Dongfeng holds 32% of shares
DongfengYueda Kia	Kia	50,000	1.67	Dongfeng holds 25% of shares
DongfengYulong	Nissan	60,000	2.01	Donfeng may hold up to 50% of shares
<b>FAW Group</b>			<b>14.21</b>	
FAW Chengdu	Toyota	5,000	.17	
FAW-Hainan	Mazda	50,000	1.67	
FAW-Toyota	Toyota/Mazda	100,000	3.34	
FAW-VW	Volkswagon	270,000	9.03	FAW holds 60% of shares
Total		1,555,000	51.85	

Source: 2003 data from China Automotive Yearbook 2003; description from China Automotive Technology & Research Center 2003.

There were some differences among the Chinese automotive business groups, however. As shown in Table 4.14, SAIC was more dependent on its joint ventures for revenue and profits (more than 60 percent) while FAW concentrated more on domestic operations. Since SAIC was one of the most successful domestic auto groups, understanding its relationship with foreign firms offers valuable insights on how joint ventures operate in China.

Table 4.14: Chinese Automotive Business Groups

	Shanghai Auto Industry Corporation (SAIC)	First Auto Work Group (FAW)	Dongfeng Group
Number of car producers	2	2	3
Number of truck producers	5	13	15
Number of engine producers	1	2	3
Number of component producers	44	3	23
2002 revenue (at 1990 level)	US\$12.8 billion	US\$10.7 billion	US\$8.4 billion
2002 assets (at 1990 level)	US\$9.4 billion	US\$8.9 billion	US\$7 billion
2002 profit (at 1990 level)	US\$3.4 billion	US\$2.4 billion	US\$2.2 billion
2002 return on assets (at 1990 level)	36%	27 %	31%
Total R&D personnel	2,390	2,594	4,946
R&D/sales intensity	1.3%	1.5%	1.5%
Number of technical centers	1	2	1
Number of training centers	1	1	1
Year developed first car	1958	1958	NA
Year developed first truck	NA	1956	1975
Number of International Joint Ventures	35	2	4
Types of International Joint Ventures	Car, truck, components	Car	Car, truck, engine
Foreign Partner Firms	General Motors, Volkswagen, Delphi, Visteon	Volkswagon, Toyota	PSA, Nissan, Cummins
JV volume/group volume*	100%	85%	100%
JV revenue/group revenue*	66%	34%	NA
JV profit/group profit*	60%	41%	NA
JV R&D personnel/group R&D personnel*	22%	12%	NA
JV R&D intensity*	1.2%	1.6%	NA
Year first car-producing JV began output	1983	1989	1992

Source: Adapted from Zhao et al (2005). Data are originally from China Automotive Industry Yearbook 2003.\* Only car-producing international joint-ventures were included.

### **A Closer Examination of SAIC-General Motors and SAIC-Volkswagon**

SAIC followed a consistent strategy in forming multiple joint ventures with different foreign firms to take advantage of the rivalry among partnering firms and to stimulate technology transfers, adaptation and expedited new model introduction. When SAIC decided to enter into a partnership with General Motors, it aimed to reduce its dependence on Volkswagon and diversify its transactions. There was enough competition in making the bid to prove its strategy was effective. When General Motors won the US\$1 billion deal to produce small cars with SAIC in March 1997, Honda (Japan), Hyundai (South Korea), BMW and Daimler-Benz (Germany) were all competing for the project.<sup>151</sup> According to the deal, each side would own 50 percent of the project, and all cars produced were required to have 40 percent local content. The goal was to produce 100,000 cars per year, depending on market conditions. It was rational for General Motors to choose SAIC over other business groups since the Chinese government had chosen SAIC to be the primary passenger car producer that promised various policy benefits. However, the major disadvantage was SAIC's existing deal with Volkswagon (Figure 4.10).

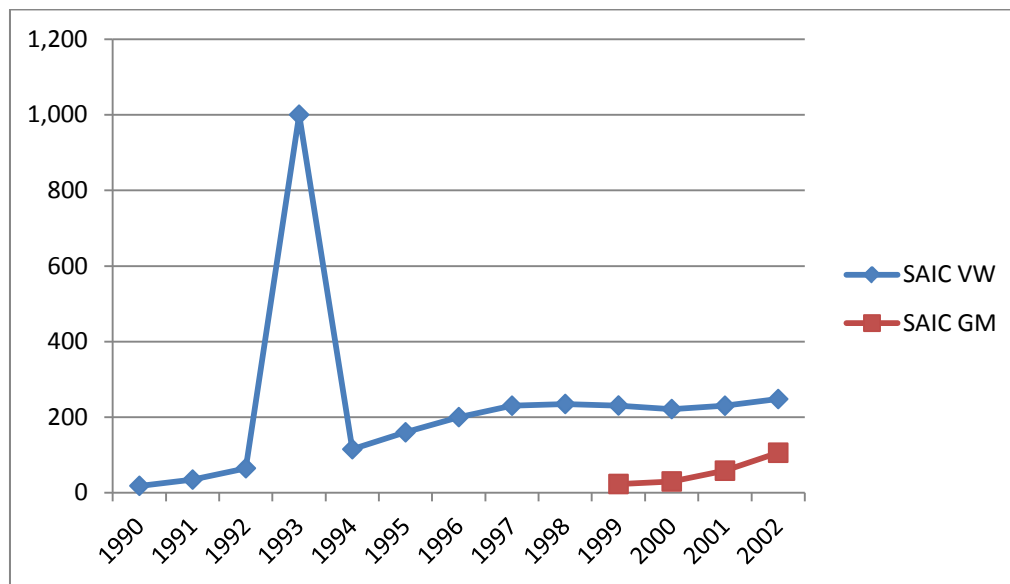
SAIC had established a joint venture with Volkswagon in 1984, which was commonly owned by Volkswagon (50 %), SAIC (25%), the Bank of China's Shanghai Trust and Consultancy Corporation (15%), and the China National Automotive Industrial Corporation (10%). The establishment in Shanghai produced 200,000 passenger cars in 1996, capturing over 50 percent of the domestic Chinese auto market that year.<sup>152</sup>

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<sup>151</sup> New York Times. 1997. "GM Advances in Bid for China Venture." May 21.

<sup>152</sup> The Financial Post. 1997. "China-GM joint venture to be set up next month," May 28.

Figure 4.10: SAIC-GM and SAIC-VW Passenger Car Sales, 1990-2002



Source: Data for 1990-1999 from Harwit 2001; 2000-2003 from Francois & Spinanger 2004

To counteract, U.S. General Motors formed a rival partnership with SAIC and made substantial concessions. General Motors promised to export US\$1.6 billion in U.S.-made parts to the plant over the next five years, and also agreed that the factory will buy most of its parts locally after that. General Motors also pledged a significant transfer of technology, including the establishment of five institutes to train Chinese engineers.<sup>153</sup> The rationale was that 1) China was pursuing a time-honored tradition in its insistence on technology and investments as a price of market entry; 2) By winning access to the China market, General Motors was providing itself with the most effective protection against the emergence of a China-based competitor; and 3) General Motors is actually competing with auto manufacturers from Japan and South Korea as well as Europe. In 2005, General Motors passed Volkswagen to become the No. 1 automaker in China, with the sales of 782,368 vehicles, a 48.7 percent increase from 2004.<sup>154</sup>

<sup>153</sup> Blustein, Paul. 1997. "Paying to enter China's shop; Economists question Boeing, GM contract concessions." Washington Post, March 26.

<sup>154</sup> Ibid.

Offering significant concessions as a price to enter China's market was not unique to General Motors or to the auto industry. However, since the transfer of high technology to China was a sensitive issue to both U.S. policy makers (as demonstrated by the sanctions imposed) and business executives, it raised concerns from multiple directions. From a U.S. firm perspective, technology transfers could assist SAIC to mature into an independent competitor in the Chinese market, creating an additional risk for foreign firms as the Chinese government was willing to strongly support the growth of local firms in a discriminate manner. Also, although the top management of SAIC, General Motors and Volkswagen seemed highly confident about their confidentiality agreements, there was a chance that SAIC would take advantage of its partnership with both General Motors and Volkswagen and take the technology learned from one joint venture to another, or simply convert it to its own use without taking proper measures.

## **Conclusion**

Evidence from the case illustration suggests that strong enforcement has significant impact on how firms respond to sanctions. In the pre-1998 period, when U.S. sanctions on high-technology transfers and satellite exports were only weakly enforced, major U.S. firms engaged in activities that raised suspicion of technology transfers to China. These firms included Hughes (which later merged with Boeing), Loral and Lockheed Martin that had high stakes in the Chinese market. As a result of federal investigations that began in 1998, however, these firms were charged with unprecedented civil penalties that increased the anticipated costs for continuing illicit transactions with China. Following strong enforcement, the firms ended their exchanges with their Chinese counterpart, which is supported by the decrease in Chinese launches of U.S. manufactured satellites. This demonstrates that when senders strongly enforce sanctions, their firms are more likely to comply with the law. If weak enforcement is one of the reasons behind the low rate of sanctions success, then why do we observe cases where senders impose sanctions only to weakly enforce them? Also, do senders actually strongly enforce under the conditions posited by the theory, that is, when their stakes are moderate

and sender-target transactions are difficult to substitute?

There is qualitative evidence to support the argument that senders are more likely to strongly enforce sanctions when their economic interests will not be jeopardized. In the early 1990s, the Chinese satellite launch service sector was highly dependent on U.S. technology such that actual competition in China's market was among U.S. satellite manufacturing firms rather than against foreign firms. Moreover, U.S.-Chinese transactions were difficult to substitute due to the near dominance of U.S. satellite technology in the world market, which would remain so into the 2000s. Thus, these conditions created high shares for U.S. firms in Chinese market, leading the U.S. to only weakly enforce sanctions in the pre-1998 period. From 1998 onward, however, as European satellite manufacturing firms grew more active in the Chinese market and as the global satellite manufacturing industry began to decline, the shares decreased from high to moderate levels, which introduced conditions conducive to strong enforcement. Thus, the U.S. government increased enforcement levels after 1998 as its shares in China's market decreased from extremely high to moderate levels and when there was a chance that the target would acquiesce to its demands.

Meanwhile, the U.S. did not demonstrate a similar degree of willingness to enforce sanctions on its satellite manufacturing firms working with Russia or its automobile manufacturing firms operating in China. In the former case, U.S. firm stakes in the Russian market were simply too high. In the latter case, firm stakes were rather low due to crowding in China's automobile market. Besides, the three main Chinese business groups entered into multiple joint ventures with numerous foreign firms, which made transactions with U.S. firms easy to substitute. These two factors combined created disincentives for the U.S. government to allocate sufficient resources towards enforcement.

Taken together, the case underlines how firms behave to protect their business and how concern for their economic interests as well as political objectives influences a sender's willingness and ability to enforce punishment mechanisms on their firms. This shows that the connection between the state and its firms are significant and needs to be incorporated when explaining how sanctions work.



## Chapter 5. A Quantitative Analysis of Sanctions Success

The theoretical framework of Chapter 3 explains that sanctions success depends on how a sender effectively deters its firms from continuing with business transactions with the target. To recapitulate, when sanctions are imposed, senders face an enforcement dilemma since it is uncertain as to how strongly sanctions need to be enforced to deter its firms from circumventing sanctions. Firms have incentives to attempt sanctions evasion when doing so is highly profitable, therefore, sender governments need to allocate sufficient resources towards policing and punishing their firms' illicit transactions with the target and deter them effectively. As senders pursue both political and economic gains, however, if the sender's anticipated economic losses from sanctions are too high, it may prefer to weakly enforce sanctions and compromise its political goal to coerce the target to preserve its firms' economic gains. Due to strategic interaction, when enforcement is weak, the expected costs of non-compliance will be low so that firms may take a chance and continue exchanges with the target illicitly. If this is the case, the probability of sanctions success will decrease. When enforcement is strong and the expected costs of non-compliance high, firms will be more likely to comply with sanctions laws. As a result, the probability of sanctions success will increase.

According to the strategic bargaining framework, a sender's expectation of firm evasion influences the level of enforcement. Particularly, due to sensitivity to market competition, the sender firm's response to sanctions depends on how much shares it has in the target's market. If the sender's firm has a dominant share and is likely to continue with illicit transactions at all costs, the sender will

only weakly enforce to preserve its economic interests. If the sender's firm has a minimal market share, the sender will not need to strongly enforce since the firm will readily comply with sanctions. When the sender's firm has a moderate share, which is enough to create incentives to evade but not so much that it cannot be deterred, the sender will strongly enforce to maximize its political interests. A firm's response to sanctions also varies according to how easy it is for the target to substitute its bilateral transactions with the sender with foreign exchanges. On one hand, if sender-target transactions are difficult to substitute, the sender's firm will be less threatened to be replaced in the target's market and thus be less likely to attempt sanctions evasion. This will incentivize senders to strongly enforce and increase the chance of sanctions success. On the other hand, if sender-target transactions are easy to substitute, the threat of being replaced will be so high that the sender's firm may be willing to evade sanctions at all costs. Then, the sender will only weakly enforce, rendering sanctions less likely to succeed.

In a strategic context, a sender's decision to *impose* sanctions will also take into account how likely a target will acquiesce to the sender's demands. If the target foresees that the sender's firm will comply with sanctions, it will be more likely to acquiesce when the sender makes a sanctions threat. If this is the case, sanctions will not actually be observed. If the target anticipates that the sender's firm will continue with illicit transactions, it will be more likely to resist to the sender's demands. In so, sanctions are more likely to be imposed. Since senders will only strongly enforce when it is likely that the target will be compelled to alter its behavior, this indicates that sanctions should be more likely to be strongly enforced when senders merely threaten to impose sanctions. In other words, sanctions are more likely to be imposed when they are less likely to be strongly enforced.

Meanwhile, strong enforcement does not guarantee that sanctions will be successful. If the target can easily substitute its transactions with the sender's firms with exchanges with foreign firms that are not influenced by sanctions laws, it can relieve itself from economic hardship and undermine the impact of sanctions. Only when such are deterred by a multilateral coalition that is highly

committed to enforce sanctions through an international institution will sanctions be more likely to succeed in coercing the target.

Then, how do we know if the theoretical argument is correct? This chapter conducts an empirical test of the predictions related to sanctions success (Table 5.1). I test hypotheses derived from a bargaining framework that distinguishes the threat, imposition and enforcement stages in a sanctions episode and incorporates strategic interactions between a sender, a target and the sender's firms. The analysis focuses on two key variables, the sender firm's share in the target's market and substitutability of sender-target transactions, which affect a sender's likelihood of strong enforcement and ultimately sanctions success. The objective is to underline the intermediary role of firms in implementing sanctions policies and demonstrate how it affects the sanctions costs inflicted on both senders and targets. Understanding these mechanisms is critical to understand how sanctions work.

An important caveat is that although the theory emphasizes the strategic behavior of firms, the hypotheses remain largely state level. Due to the lack of appropriate firm level data that can be used with existing sanctions data, the variables included in the hypotheses are national level summaries of firm characteristics. Recognizing this disconnect, I have tried to minimize the loss of explanatory power by using the sharpest indicators possible when adopting state level measures that vary with changes at the firm level. In addition, I have included an alternative test that operationalizes the sender's market share variable by measuring the level of competition the sender's firms are faced with in the target's market. While not perfect, it works towards creating a closer link between state and firm interactions.

In the next section, I outline the research design and empirical model used to evaluate the implications of the theory. The goal is to clearly demonstrate how each indicator is the best possible measure for the concepts in the theory, since measurements for some indicators may be well established while new, more abstract concepts require proxy measurements that are open for debate.

## Data

The sender's decision to enforce sanctions, specifically the extent to which senders allocate resources towards monitoring, detecting and prosecuting firms that evade sanctions, is the most important element of the theory. However, it is very difficult to directly observe the varying levels of enforcement since official reporting and prosecution of sanctions evasion attempts are rare. More importantly, it is near impossible to observe how senders enforce sanctions systematically since states vary in the degree to which the government can coerce or police its firms and individuals.<sup>155</sup> As a consequence, it is extremely difficult to measure enforcement levels quantitatively. Unlike the imposition of sanctions where laws are formulated and announced through various governmental and media channels, we should only observe enforcement when it is so strong that it warrants a public inquiry reported by news sources. Identifying the lack of enforcement will also be confounded by numerous external factors. Due to these reasons, the causal relationship between the key independent variables and sanctions enforcement is difficult to observe, as with most inquiries in social science research.<sup>156</sup> As an alternative, I test the hypotheses that predict sanctions success since it is through varying levels of enforcement that the key independent variables impact how successful sanctions are.

The bargaining theory of sanctions enforcement and success offers predictions about the conditions under which sanctions are more likely to be successful and when senders are more likely to impose sanctions. To test these predictions, information on the start and end date of a sanctions case, as well as characteristics of the sender and target and their economic interactions involving firms, is required. I compiled a sample of economic sanctions using data from the Threat and Imposition of Sanctions (TIES) database for 1971-2000 (Morgan et al. 2009). Each observation in

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<sup>155</sup> For instance, in countries like South Korea and Japan where the government yields much political authority over its citizens, firms would prefer not to confront the government by breaking its laws since the costs of retaliation is very high. These countries do not have a separate agency or budget for sanctions enforcement. In Korea, for example, the police and the Korean National Intelligence Service (NIS) execute most of the enforcement responsibilities and the details are not publicly available.

<sup>156</sup> Perhaps this is why numerous large-N sanctions studies have only briefly discussed the idea of enforcement if at all and resorted to measuring sanctions success instead. The two main existing datasets of economic sanctions, Hufbauer et al. (1990) and the Threat and Imposition of Economic Sanctions (Morgan et al. 2009), each include a variable denoting sanctions effectiveness.

TIES represents a case that has either been threatened or directly imposed on a distinct target by a sender. A sanctions case is defined in the TIES database as follows:

Sanctions are actions that one or more countries take to limit or end their economic relations with a target country in an effort to persuade that country to change its policies. By definition, a sanction must 1) involve a sender state and a target state 2) be implemented by the sender in order to change the behavior of the target state. Actions taken by states that restrict economic relations with other countries for solely domestic economic policy reasons therefore do not qualify as sanctions. Sanctions may take many forms including actions such as tariffs, export controls, embargoes, import bans, travel bans, freezing assets, cutting aid, and blockades. For the purposes of this dataset, all sanctions episodes may only include one target state. If a sender(s) states makes threats against multiple targets, a new episode is created for each individual target.

The theory builds on the assumption that the sender's decision to impose and enforce sanctions is strategic. Therefore, if we do not properly take account of the sanctions threats that succeed in deterring a target and do not materialize into sanctions legislation, we will only capture part of the outcomes possible. Unlike the sanctions data compiled by Hufbauer et al. (2007), which has been employed in the majority of existing sanctions studies, the TIES database remedies this problem by incorporating information about sanctions threats as well as imposition for each case. According to the coding rules, a sanctions case begins when a sender threatens sanctions or directly imposes sanctions on a target. Some cases may end with sanctions merely used as a threat while sanctions are actually imposed in other cases. This has the additional effect of increasing the number of observations significantly. In total, there are 888 sanctions cases in TIES.

As the theory assumes that the sender's firms make independent decisions from their government and are capable of engaging in substantial trade and investment with targets, and also due to the richness of data, I limit the cases to sanctions with primary senders that are members of the Organization for Economic Cooperation and Development (OECD). Since the focus is on economic transactions involving firm activities, I also eliminate cases where imposed sanctions do not directly involve firms, such as asset freezes and travel bans.

The data used to create the control variables were extracted from the Correlates of War (COW) database using EUGene software (Bennett and Stam 2000). I also consulted the latest

versions of several databases including information on interstate trade flows (Gleditsch 2002), Polity IV (Marshall and Jaggers 1996), and strategic rivalries (Thompson 2001).

Table 5.1: Summary of Hypotheses

Dependent Variable	Hypotheses
Sanctions Success	<p>H2b: Sanctions are more likely to succeed in coercing the target when the sender firm's share in the target's market is moderate and less likely to succeed when its share is either low or high.</p> <p>H3b: Sanctions are more likely to succeed when the sender's transactions with the target are difficult to substitute.</p>
Sanctions Imposition	<p>H4a: Senders are more likely to impose sanctions when its share in the target's market is either high or low.</p> <p>H4b: Senders are more likely to impose sanctions when sender-target transactions are easy to substitute.</p>
Multilateral Sanctions Success	H5: When sanctions are imposed, they are more likely to succeed with institutional support than without.

### Dependent Variables

The analysis requires two dependent variables. Sanctions success, the first dependent variable, indicates whether or not sanctions successfully coerced the target in changing its behavior or at least came to an agreement on change. This variable is coded using the "Final Outcome" variable in TIES, which describes how each sanctions case ended. The variable is coded as 1 if the target acquiesces to the sender's demands or if a negotiated settlement is reached, and 0 otherwise.

Sanctions imposition, the second dependent variable, indicates whether or not sanctions were imposed and related legislation was passed. I use information from TIES, which codes cases where a sender imposes new sanctions on a target as 1, and cases where senders only threaten sanctions but do not impose them as 0. The data consists of 86 cases where sanctions were imposed and successfully

altered the target's behavior. This indicates that once imposed, sanctions have a 24.5 percent success rate.

### **Independent Variables**

The first key independent variable is the *sender firm's share in the target's market* (also referred to as sender's market share). I measure the level of economic exchange between the sender and target by using the proportion of the volume of bilateral trade over the target's total trade. The ratio represents the relative share of the target's trade conducted with the sender. As the ratio nears 1, the sender's firms dominate the target's total trade, which means the sender's firms comprise almost all of the target's foreign transactions. As the ratio approaches 0, transactions between the sender and target is minimal, which means the sender's firms only account for a small portion of the target's external trade relations. Substantively, the sender's market share variable captures how much influence the sender has in the target's market, which has direct impact on the sender's willingness and capability to strongly enforce or impose sanctions. When the sender's market share is dominant, the firm enjoys a high volume of transactions with the target, and is thus able and willing to endure the inefficiency costs of continuing illicit transactions to reap the benefits. This emboldens the firm to take a risk and circumvent sanctions. When the sender's market share is small, the sender firm's transactions with the target are minimal. In this case, the firm is both unwilling and unable to protect what little influence it has over the target by paying additional transaction costs, and is thus more likely to comply with the sanctions law.

I operationalize the sender market share variable in terms of the target's total trade flows rather than its GDP for the following reasons.<sup>157</sup> First, only a fraction of the firms in any country engage in imports and exports, so it is important to capture how dependent the target is on the sender in terms of trade volume to accurately assess the stakes of the firms within the target's market.

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<sup>157</sup> O'neal and Russett (1999) have operationalized state A's trade dependence on state B as the ratio of bilateral trade between states A and B over state A's GDP, which shows whether a given trade relationship matters, relative to a state's overall economic performance.

Second, the population of the sender's firms is comprised of a mix of domestic and multinational firms, with an increasing portion of multinationals. In the case of the U.S., which is a sender in more than two-thirds of the cases in my sample, multinational exporters are typically goods producers while more than half of multinational importers are in the wholesale and retail sector (Bernard et al. 2007). Hence, the trade flows from these firms are most likely to be influenced by sanctions that suspend economic transactions with the target. Since the theory predicts that the sender's stakes have a curvilinear effect on the probability of sanctions imposition and subsequent success, the ratio and its square are included in the statistical models.

Meanwhile, there is a need to account for the possibility that foreign trade does not comprise a significant portion of the target's GDP. On one hand, the sender's firms may dominate the target's total trade, but the target's trade may only comprise a small fraction of the target's total GDP. In these cases, the cost of absorbing sanctions would be minimal for the target, even though the sender's firm appears to have leverage. On the other hand, if trade represents a significant portion of the target's GDP, a sender that dominates bilateral trade with the target would have greater leverage over the target's economy. Therefore, I construct a target's trade proportion variable that captures the ratio between a target's total trade and its GDP. In creating these variables, I use expanded trade data from Gleditsch (2002). The database includes dyadic export and import flow data as well as GDP with far less missing observations compared to other trade data sources.

One could further argue that the sender's market share, being a state level variable, could represent a host of factors, including the political clout of firms in select industries or domestic audience costs of the sender, which may confound the causal linkage between firm behavior and sanctions outcomes. Currently, the TIES sanctions database does not offer information about which industry or sector is affected by sanctions. Thus, I am unable to identify firm lobbying activities or campaign contributions that may gauge the firm's political influence over the government. The idea of domestic audience costs is innovative and has been employed in various theoretical contexts (Fearon 1994, 1997; Smith 1998). However, there is much contention about whether or not audience



costs actually exist. Whether or not a sender is a democracy may serve as a crude proxy for domestic audience costs, since leaders of democratic regimes have been claimed to be more likely to be electorally punished for backing down from threats and looking incompetent. However, there is hardly any variance for this in the sanction sample at hand and is thus not appropriate.

The second key independent variable denotes the *substitutability of bilateral exchanges between a sender and target*. This refers to the ease to which a target can find a substitute trade partner or foreign investor should the sender's firm comply with sanctions and end transactions. On one hand, if transactions are easy to substitute, the sender's firms will be threatened to be replaced and be more willing to evade sanctions. In these cases, the sender will anticipate that the target will not likely acquiesce to its demands and only weakly enforce. On the other hand, if transactions are difficult to substitute, the threat of being replaced will be low and firms will be more likely to comply with sanctions. Subsequently, the sender will be more likely to strongly enforce sanctions.

Considering both trading and investing firms, this variable can be operationalized in several ways. In terms of trade, the first option is to measure the sender's reliance on bilateral trade with the target, operationalized as the ratio of bilateral trade between the sender and target over the sender's total trade. This variable denotes the structure of trade as it shows how concentrated or dispersed the target's trade is, thus capturing how sensitive the sender is to being replaced as the target's trade partner. As the ratio approaches 1, the sender's reliance on bilateral trade with the target increases, which shows that the target's trade is concentrated on exchanges with the sender. If so, the threat of being replaced will be low and the sender's firms will be less likely to attempt sanctions evasion. This will induce the sender to strongly enforce sanctions. As the ratio nears 0, the target's trade becomes more dispersed among various trade partners. In these cases, the sender's firms will be more sensitive about being replaced and be more likely to attempt sanctions evasion. This will make the sender more likely to weakly enforce.

The second option is to operationalize substitutability in terms of the target's total trade flow, which captures the size of the target's trade market and directly gauges the ease to which a target can

engage in foreign exchanges with other trade partners. If the target's total trade increases, substitutability of sender-target transactions increases, and the sender will be more likely to weakly enforce. As the target's total trade decreases, substitutability decreases and the sender will be more likely to strongly enforce, increasing the chance of sanctions success. The trade data used to create these variables is from Gleditsch (2002).<sup>158</sup> As the value of total trade is very large, I used standardized measures by subtracting the mean and dividing it by the standard deviation.

In terms of investment, substitutability can be measured as the target's dependence on the sender as a source of FDI, namely the proportion of the sender's FDI outflows to the target over the target's total FDI inflows. If the target is highly dependent on the sender for investment, substitutability of transactions will be low, leading to strong enforcement. Currently, however, there are some limitations in data availability. The World Bank (2008) has data on global FDI inflows from all states in the world to each state as a percent of the recipient's GDP, a measure commonly used in the FDI literature (Jensen 2003, 2006; Biglaiser and DeRouen 2006). However, there is no information available on FDI outflows from individual states. The Bureau of Economic Analysis (BEA) only offers U.S. FDI net capital outflow data to each recipient country.<sup>159</sup> Using the IMF's dyadic dataset of investment between countries is an option, however, the data does not offer coverage for 1971-2000, the years of the analysis. Hence, this variable was not included in the analysis.

The third independent variable indicates *whether or not multilateral sanctions were imposed with support from an international institution*. Since individual senders face enforcement problems at home that exacerbate collective actions problems in a multilateral sanctions context, they need some external guarantee that the sanctions coalition will remain intact and be effective. International

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<sup>158</sup> One might suggest using an indicator for the target's trade openness, measured by the ratio of the target's total trade over its GDP. However, this is more appropriate in representing the structure of a state's national economy by showing how autarkic or integrated it is to the global economy than gauging the target's ability to substitute its exchanges with the sender.

<sup>159</sup> The data are called Capital Outflows Without Current-Cost Adjustment.  
<http://www.bea.gov/international/index.htm#iip>.

institutions can motivate states to cooperate by building issue linkages, monitoring enforcement and punishing defectors (Axelrod and Keohane 1985; Keohane 1984). Hence, when multilateral sanctions are imposed with institutional approval, it will be more likely to induce strong enforcement from coalition members and successfully coerce the target. Using information from TIES, I create a dichotomous variable that is denoted as 1 when more than one sender is involved as well as an international institution, and 0 otherwise.

### **Control Variables**

Taking into account alternative explanations for sanctions success, I include several control variables identified in the extant literature. First, I include a measure that denotes whether the case includes a *major policy goal*. I create a dichotomous major policy goal variable using the “Issue” variable in TIES. I denote major policy goal as 1 if the issue includes the following: demands to contain political influence or military behavior, destabilize the target’s regime, release citizens or property, solve territorial disputes, deny strategic materials, retaliate for alliance or alignment choice, or end weapons/material proliferation and 0 otherwise.

Second, I create a dichotomous *expected future conflict* variable using Thompson’s strategic rivalry concept that identifies states that perceive each other as military competitors and qualify as an enemy (Thompson 2001). If a sender and target are identified as military rivals, they are expected to engage in future conflict and the variable is denoted as 1, and 0 otherwise.

Third, I control for the *balance of capabilities* between the sender and target. I use a composite national capabilities index developed by Singer, Bremer and Stuckey (1972) to calculate the proportion of the sender’s capabilities over both the sender and target’s capabilities. The index includes measures from 6 areas: the country’s iron/steel production, the country’s urban population, the country’s total population, the country’s total military expenditures, the country’s total military personnel and the country’s total amount of energy production. A larger figure indicates a stronger sender.

Fourth, I include a *target's regime* variable. I use the Polity IV data to create a general target regime variable that ranges from -10 to 10, 10 indicating full democracy (Marshall and Jaggers 1996).

Last, I control for issue salience. I create a dichotomous *low salience issue* variable using the “Issue” variable in TIES, which is coded as 1 if the issue is related to less salient issues such as trade practices, economic reform, or environmental policies, and 0 otherwise.

### **Analytic Methods**

When examining a sanctions case, it is important to recognize that sanctions cannot succeed unless they are imposed. In methodological terms, the effectiveness of sanctions is censored by sanctions imposition. Therefore, I estimate the effects of the key variables on sanctions success and imposition by creating regression models for Heckman probit analysis. I adopt this method to consider the possibility of selection effects, that is, to account for the unobserved factors that determine whether sanctions are imposed or not, which could introduce systematic bias in the analysis. The equations for sanctions imposition and sanctions success are not independent and should be solved simultaneously (Reed 2000).

The Heckman probit analysis estimates a selection equation and an outcome equation. I specify the selection equation with sanctions imposition as the dichotomous dependent variable and the outcome equation using sanctions success as the dichotomous dependent variable. In the full Heckman model including the control variables, the outcome equation is specified with sender's market share, sender's market share square, target's total trade, multilateral sanctions with institutional support and several controls including target regime, major policy goal, expected future conflict, and the target's trade proportion. The selection equation includes sender's market share, sender's market share square, target's total trade, multilateral sanctions with institutional support as well as controls including target regime, target's trade proportion, low salience issue, and expected future conflict. To capture the effects of the key independent variables, I also report the results without the control variables in each equation.

Table 5.2: Variables, Operationalization and Predictions

Variable	Operationalization	Predictions
Sender's Market Share	The proportion of the sender and target's bilateral trade over the target's total trade	<p>When the sender's market share is moderate, senders are more likely to strongly enforce sanctions. Hence, sanctions are more likely to succeed.</p> <p>When the sender's market share is low or high, senders are less likely to impose sanctions. Hence, sanctions are less likely to succeed.</p>
Substitutability of Sender-Target Transactions	Target's total trade, Target's trade concentration	<p>Sanctions are more likely to succeed when the sender's transactions with the target are difficult to substitute (when the target's total trade decreases, target's trade is concentrated).</p> <p>Senders are more likely to impose sanctions when sender-target transactions are easy to substitute (when the target's total trade increases, target's trade is dispersed).</p>
Multilateral Sanctions with Institutional Support	Sanctions imposed by more than one sender that involves international institutions	When sanctions are imposed, they are more likely to succeed with institutional support than without.
Major Policy Goal	Issues that require higher levels of commitment	Sanctions are more likely to succeed when the sender's major policy goal is involved.
Expected Future Conflict	Sender and target perceive each other as military rivals	<p>Sanctions are less likely to succeed when future conflict is likely.</p> <p>Sanctions are more likely to be imposed when future conflict is likely.</p>
Balance of Capabilities	The ratio of the sender's national capabilities over the total capabilities of the sender and target	Sanctions are more likely to succeed when the sender is militarily stronger than the target.
Low Salience Issue	Sanctions imposed for non-security reasons.	Sanctions are more likely to be imposed when the issue is less salient.
Target Regime	Target's regime type	<p>Sanctions are more likely to be imposed against democratic targets.<sup>^</sup></p> <p>Sanctions are more likely to succeed when the target is democratic.<sup>^</sup></p>

<sup>^</sup> The empirical record is mixed.

Table 5.3: Summary Statistics

Variable Type	Name	Observations	Mean	Standard Deviation	Min.	Max.
Dependent Variable 1	Success	594	.14	.35	0	1
Dependent Variable 2	Imposition	594	.59	.49	0	1
Key Independent Variables	Sender's Market Share	497	.19	.19	0	.81
	Standardized Target's Total Trade	497	0	1	-.83	3.3
	Target's Trade Concentration	497	.03	.05	0	.21
	Multilateral Sanctions with Institutional Support	594	.01	.29	0	1
Control Variables	Major Policy Goal	594	.16	.37	0	1
	Expected Future Conflict	594	.01	.11	0	1
	Balance of Capabilities	592	.74	.28	.05	1
	Target Regime	576	6.36	4.13	0	10
	Target's Trade Proportion	467	20.1	25.9	.05	219.29
	Low Salience Issue	594	.64	.48	0	1

### Summary of Main Findings

The quantitative analyses offer strong evidence that sender's market share and multilateral sanctions supported by international institutions significantly influence the probability of sanctions success and imposition in the expected directions. Table 5.4 presents the results of the statistical analyses. The key variable model only includes sender's market share, target's total trade and the multilateral sanctions variable while the full model includes all the control variables. The rho coefficient is not statistically significant for the Heckman probit models, so I also report the results from separate probit models (Table 5.5). They display similar results to the Heckman model for all key variables, which demonstrates that the impact of the key variables on sanctions success and imposition is quite robust.

In the key variable model, the coefficients for the sender's market share variable and its square are in the expected directions and are statistically significant in both outcome and selection

equations. Consistent with hypothesis 2b, the sender's market share variable is positive while its square term is negative in the outcome equation, which indicates that sanctions are more likely to succeed if the sender's firms control enough of the target's market to make sanctions damaging, but are not so influential so that sanctions become unenforceable. This suggests that sanctions are most likely to successfully coerce the target if the sender's firms have moderate share in the target's market. Also, in agreement with hypothesis 4a, the sender's market share variable is negative while its square is positive in the selection equation. This suggests that sanctions are more likely to be imposed if the sender's firms either do not engage in significant economic exchanges with the target, or has dominant market share. What is substantially meaningful is that sanctions are more likely to be successful when the sender's firms have a moderate share in the target's market, but are less likely to be imposed under these circumstances. The coefficient for sender's market share variable in the full model is statistically significant in the selection equation but not in the outcome equation. However, the coefficients are in the expected direction.

The positive and statistically significant coefficient for multilateral sanctions with institutional support confirms hypothesis 5. This suggests that we can anticipate higher sanctions success rates when sanctions are imposed by a coalition of senders with the support of an international institution compared to when sanctions are imposed unilaterally. Meanwhile, the coefficient for the target's total trade variable, which represents the substitutability of sender-target transactions, is zero in the outcome and selection equations for both key variable and full models. Only the coefficient for the outcome equation in the key variable model is statistically significant. With these results alone, we are unable to determine the impact of substitutability on either sanctions success or imposition. To resolve this problem, I considered using the target's trade concentration variable, an alternative measure for substitutability. However, the variable was found to be highly collinear with the sender's market share variable, which could potentially bias the statistical results if included in the same model. Therefore, I report the results of a probit model that only includes the target's trade concentration variable and the rest of the control variables (Table 5.6).

Table 5.4: Key Variable and Full Model

	Key Variable Model		Full Model with Controls	
Variable	Probit Model 1 with Selection: Outcome Equation	Probit Model 1 with Selection: Selection Equation	Probit Model 2 with Selection: Outcome Equation	Probit Model 2 with Selection: Selection Equation
Sender's Market Share	5.63*** (1.33)	-3.98*** (.97)	1.97 (1.32)	-4.07*** (.98)
Sender's Market Share Square	-5.65** (2.08)	4.66*** (1.29)	-1.83 (1.76)	4.49** (1.37)
Substitutability (Target's Total Trade)	0*** (0)	0 (0)	0 (0)	0 (0)
Multilateral Sanctions with Institutional Support	1.62*** (.29)		1.12*** (.26)	
Target's Trade Proportion			-.02 (.01)	0** (0)
Major Policy Goal			.4* (.16)	
Expected Future Conflict			.95* (.37)	6.38*** (.22)
Balance of Capabilities			.46 (.68)	
Target Regime			0 (.02)	.02 (.02)
Low Salience Issue				.27* (.14)
Constant	-1.03*** (.2)	.54*** (.11)	-1.68** (.64)	.46** (.15)
Rho	-.14 (.17)		1.0 (0)	
N selected	215		193	
N total	497		460	

Note: Robust standard errors in parentheses, clustered by target. \*p<.1, \*\*p<.5, \*\*\*p<.01.



Table 5.5: Separate Probit Models

Variable	Probit Model 3: Success	Probit Model 4: Imposition
Sender's Market Share	2.87* (1.41)	-4.22*** (.92)
Sender's Market Share Square	-2.62 (1.78)	4.68*** (1.23)
Substitutability : Target's Total Trade	0 (0)	0 (0)
Multilateral Sanctions with Institutional Support	.89** (.28)	
Target's Trade Proportion	-.02* (.01)	0 (0)
Major Policy Goal	.58** (.2)	
Expected Future Conflict	.98 (.75)	^
Balance of Capabilities	-.18 (.66)	
Target Regime	0 (.02)	.02 (.02)
Low Issue Salience		.1 (.14)
Constant	-1.19* (.61)	.53** (.17)
N	460	454
Pseudo R-square	.16	.05

Note: Robust standard errors in parentheses, clustered by target. \*p<.1, \*\*p<.5, \*\*\*p<.01.

^ Expected future conflict was omitted from the model as it predicted imposition perfectly.

As shown, the coefficients for target's trade concentration are positive in the outcome equation and negative in the selection equation, both being statistically significant. This offers support for hypotheses 3b and 4b, respectively. Substantively, the positive coefficient in the outcome equation indicates that as the target's trade is more concentrated on its exchanges with the sender, its transactions become more difficult to substitute with other trade partners. In this case, senders are more likely to strongly enforce sanctions, which increase the chance of sanctions success. The negative coefficient in the selection equation suggests that as the target's trade is more dispersed, its transactions with the sender become easier to find a replacement for. If this is the case, the sender will

be more likely to weakly enforce, anticipating that its firms will have strong incentives to evade sanctions. Hence, the sanctions success rate will decrease.

Table 5.6: Full Model with Alternative Substitutability Measure

Variable	Probit Model 5 with Selection: Outcome Equation	Probit Model 5 with Selection: Selection Equation
Substitutability : Target's Trade Concentration	2.94** (1)	-2.27** (.87)
Major Policy Goal	.53*** (.12)	
Expected Future Conflict	-.82 (.56)	^
Balance of Capabilities	.53* (.22)	
Target Regime	-.05*** (.22)	.54*** (.01)
Low Salience Issue		-.23* (.1)
Constant	-.05 (.22)	.04 (.11)
Rho	-1.0 (0)	
N selected	207	
N total	482	

^ Expected future conflict was omitted from the model as it predicted imposition perfectly.

### Predicting Sanctions Success

Figures 5.1 ~ 5.3 show the predicted probabilities of sanctions success by each key independent variable of the key variable model. First, Figure 5.1 presents the effect of the sender's share in the target's market on the probability that sanctions are successful. The predicted probability of success peaks when the sender's share is at moderate levels and the probability of success begins to decrease as the sender's share approaches high or low levels. This supports the prediction that for senders whose firms dominate the market in the target or have a minimal market share, sanctions are unlikely to be an effective instrument as they either deter targets in the threat stage or become unenforceable (H2b). Whereas existing explanations have argued that increasing sender influence should

monotonically increase the probability of success, the Heckman probit results capture the *curvilinear empirical pattern* identified in the data. In the following histogram, note that the senders in the sanctions sample have shares that are more densely populated at lower than higher levels, which explains the varying width of the confidence intervals.

Figure 5.1 also shows that the predicted probabilities of success are on average quite low, barely reaching 0.4 at its highest point. This offers support for the claim that targets will strategically anticipate whether or not the sender's firms will continue to engage in illicit exchange. If the firms are likely to be deterred by sanctions, the target will acquiesce at the threat stage and sanctions will not be observed. When we do observe sanctions being imposed, however, they are less likely to coerce the target to change its behavior mainly because the target expects to continue its economic exchanges with the sender's firms.

Second, Figure 5.2 shows the impact of the target's total trade on sanction success. As the target's total trade increases, the predicted probability of sanctions success decreases. This suggests that when the target has a large trade market, making it easier to find a substitute for its exchanges with the sender, the senders are less likely to strongly enforce as their firms will be more determined to continue illicit transactions with the target. In effect, sanctions will be more prone to fail. In the histogram shown, note that there are more targets with low total trade flows in the given sanctions sample.

Figure 5.1: Predicted Probabilities of Sanctions Success by Sender's Market Share

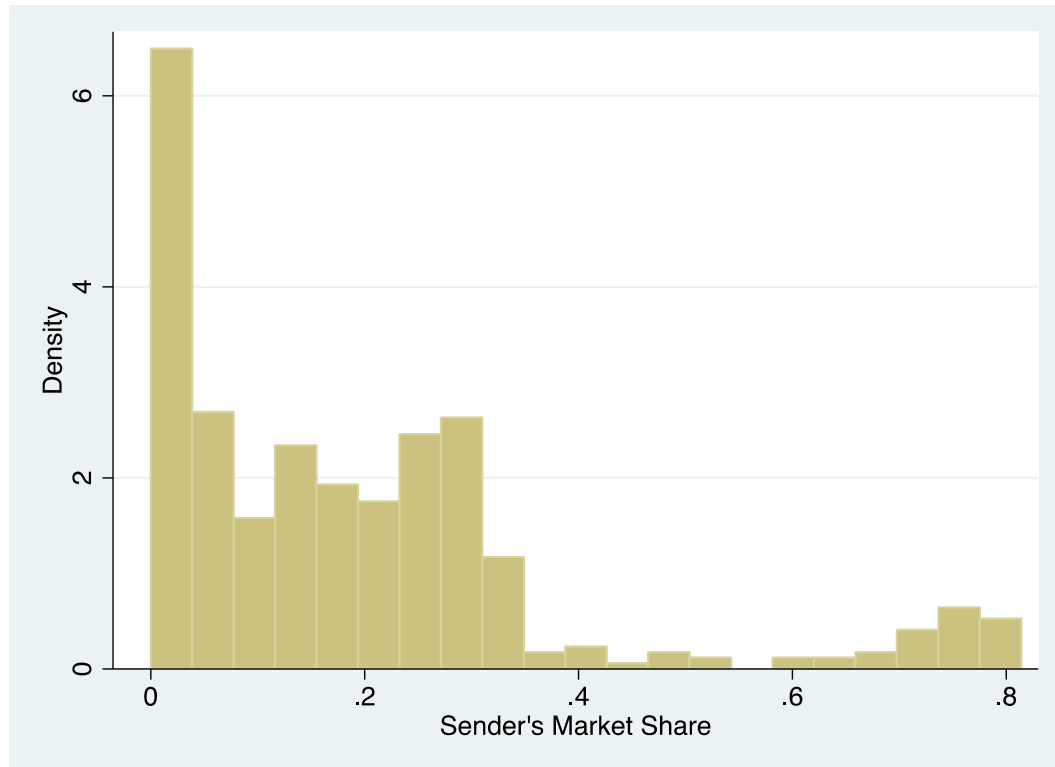
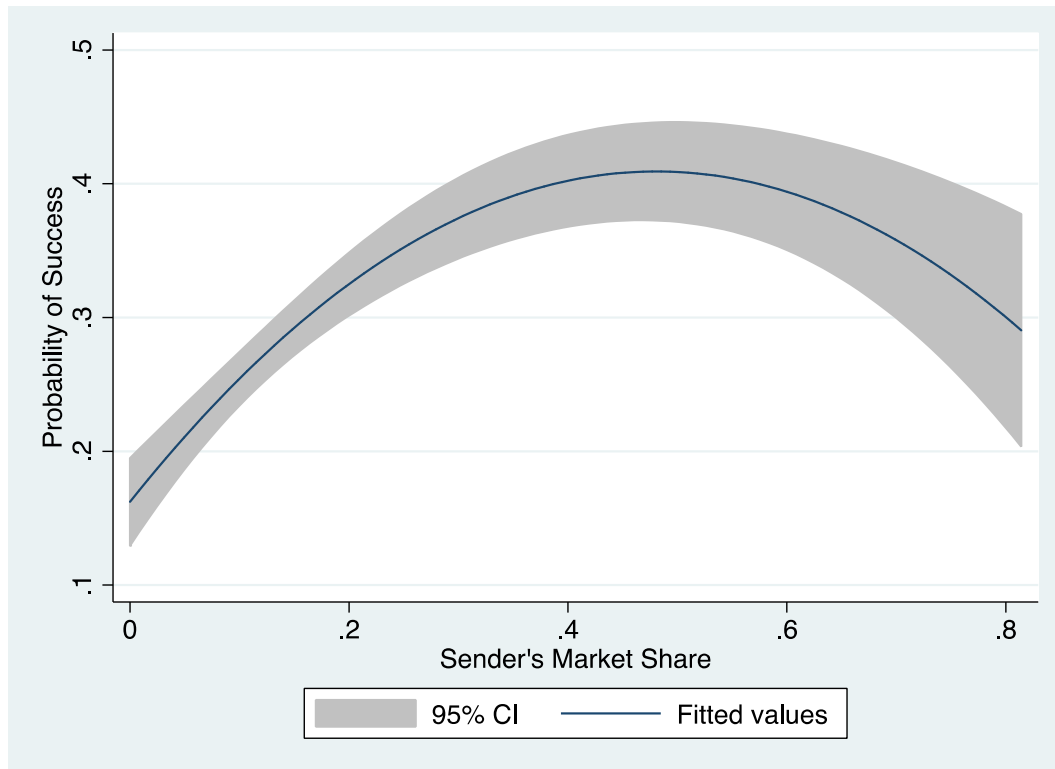
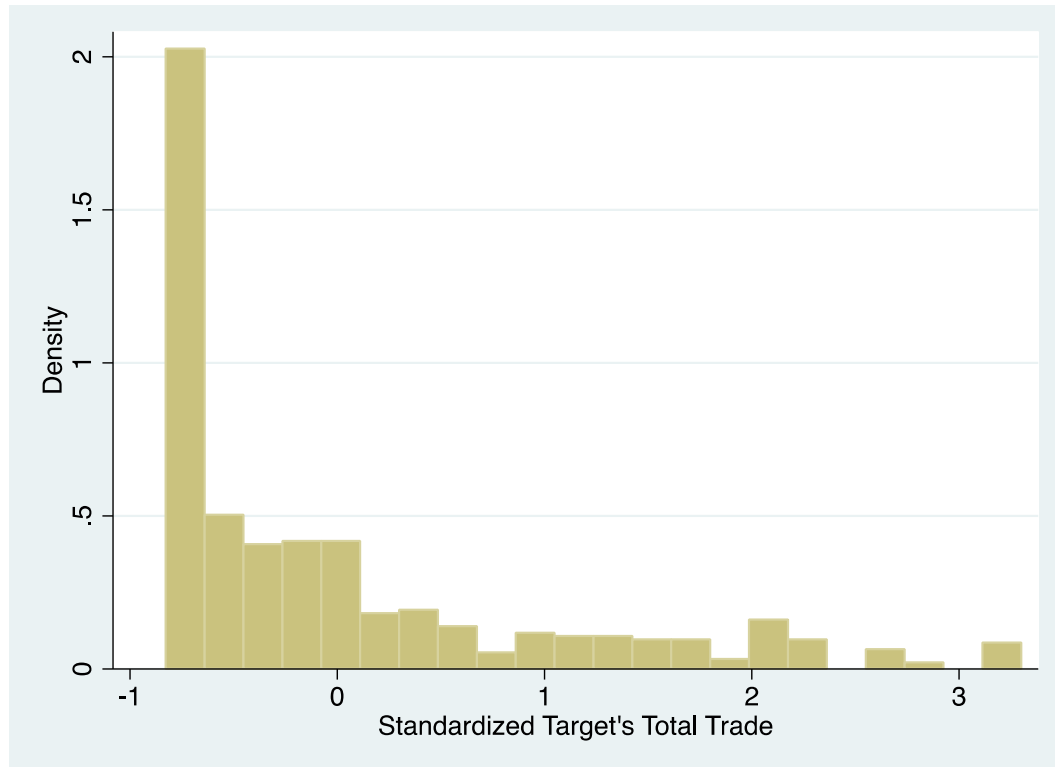
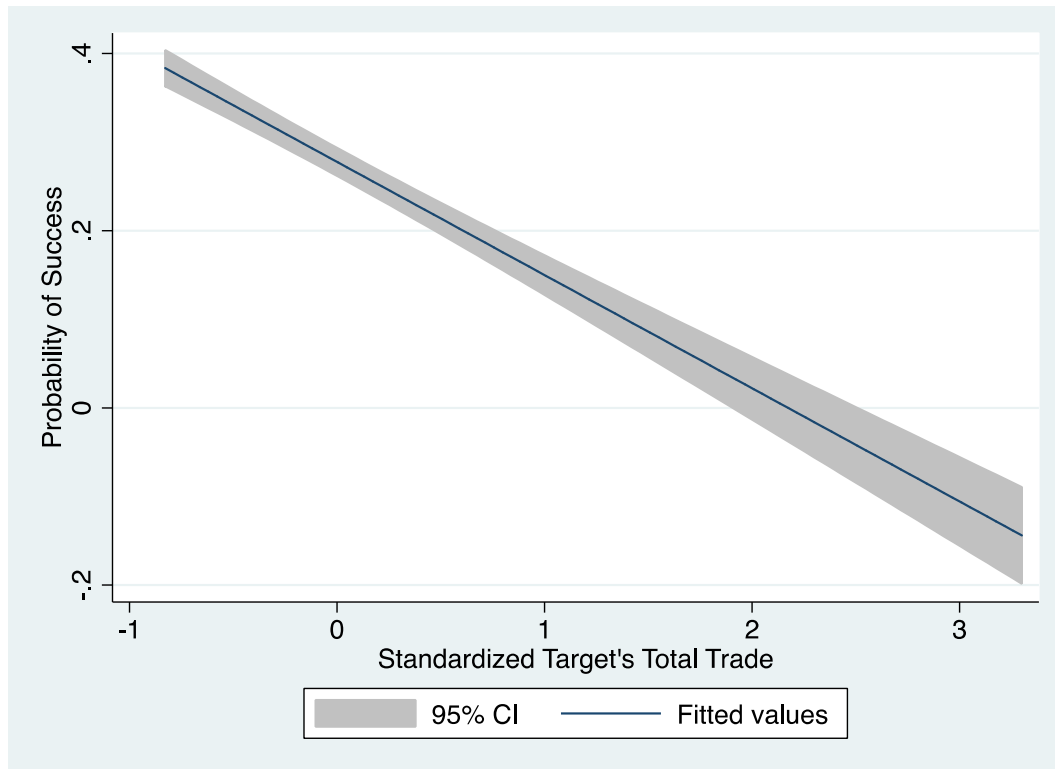


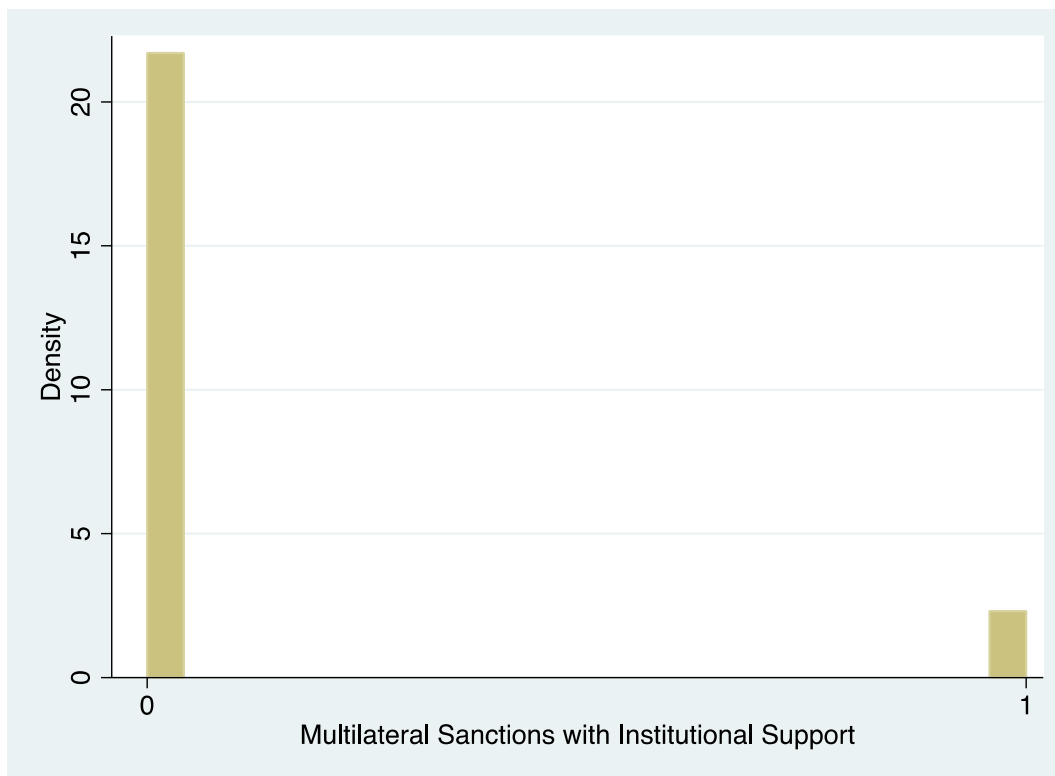
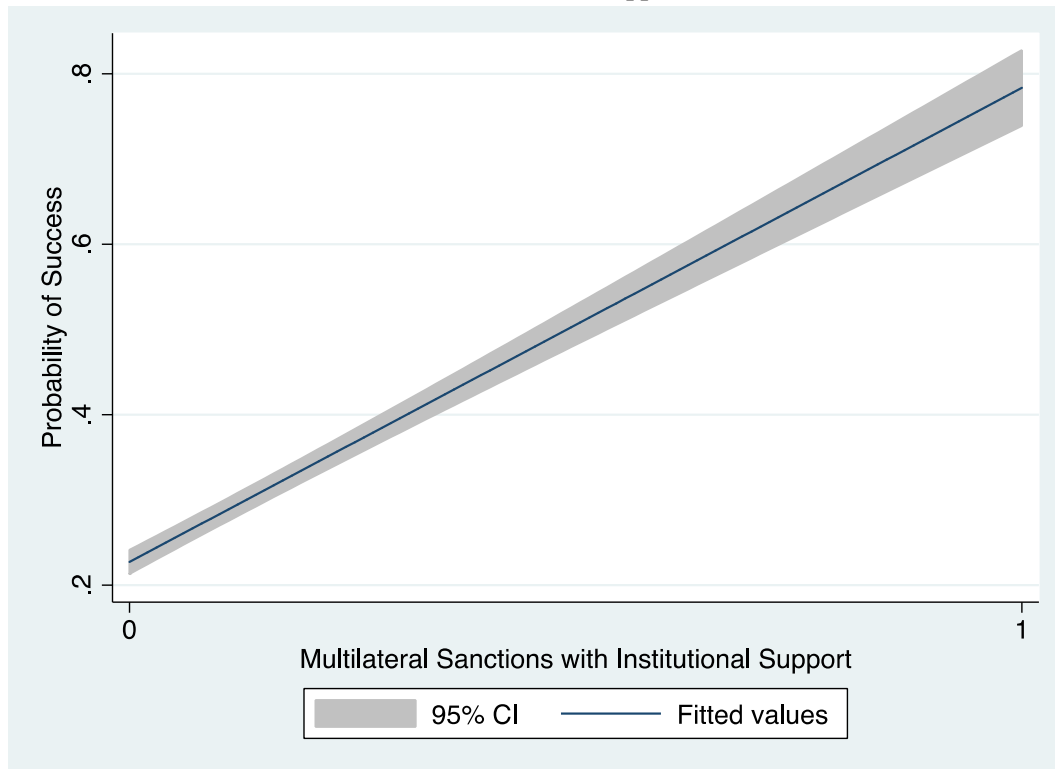
Figure 5.2: Predicted Probabilities of Sanctions Success by Target's Total Trade



Interestingly, Figure 5.2 shows that the predicted probability of sanctions success is even lower than that of Figure 5.1, which again underlines how targets strategically anticipate the sender firm's response to sanctions and act accordingly. That is, if the sender's firms are likely to comply with the sanctions law, the target will acquiesce at the threat stage and sanctions will not be observed. When sanctions are actually imposed, however, it is mainly because the target expects illicit exchanges to continue, which makes them less likely to acquiesce to the sender's demands.

Third, Figure 5.3 demonstrates that the success rate of sanctions is much higher when they are imposed by multiple senders under the auspices of an international institution than when they are imposed unilaterally. This underscores the need for institutional mechanisms to ensure the success of multilateral sanctions. According to the theory, a sender's enforcement problem exacerbates the collective action problem when more than one sender is involved in coercing a target to change its behavior. That is, although multiple senders may agree to jointly impose sanctions, there is no guarantee that each party will fulfill its obligation and strongly enforce the sanctions law on their firms. In fact, individual economic interests to maximize profits may lead senders to only weakly enforce sanctions at the price of compromising the common political goal to coerce the target. Should any one of the senders defect from the collective effort and only weakly enforce, the remaining senders' firms may be disadvantaged in market competition. This could lead to additional defection, and eventually result in a breakdown of the sanctions coalition. Neoliberalist theory suggests that institutions enable the sharing of information and offer enforcement mechanisms to punish defectors, which offers some assurance against defection among the senders. That is, when sanctions are imposed with institutional approval, the cost of defection increases. Therefore, senders will be more likely to strongly enforce sanctions with the confidence that the target will not find a lucrative exit option that will hurt their economic interests.

Figure 5.3: Predicted Probabilities of Sanctions Success by Multilateral Sanctions with Institutional Support



The control variables in Table 5.4 offer some interesting insights. In accordance with existing studies, senders are more likely to strongly enforce sanctions in cases that involve major policy goals, which increase the likelihood of sanctions success. The expected future conflict variable has significant impact on sanctions success in the opposite direction, that is, sanctions are shown to be more effective when the sender and target perceive each other as enemies. The balance of capabilities variable does not have significant impact on sanctions success, which weakens the signaling argument.

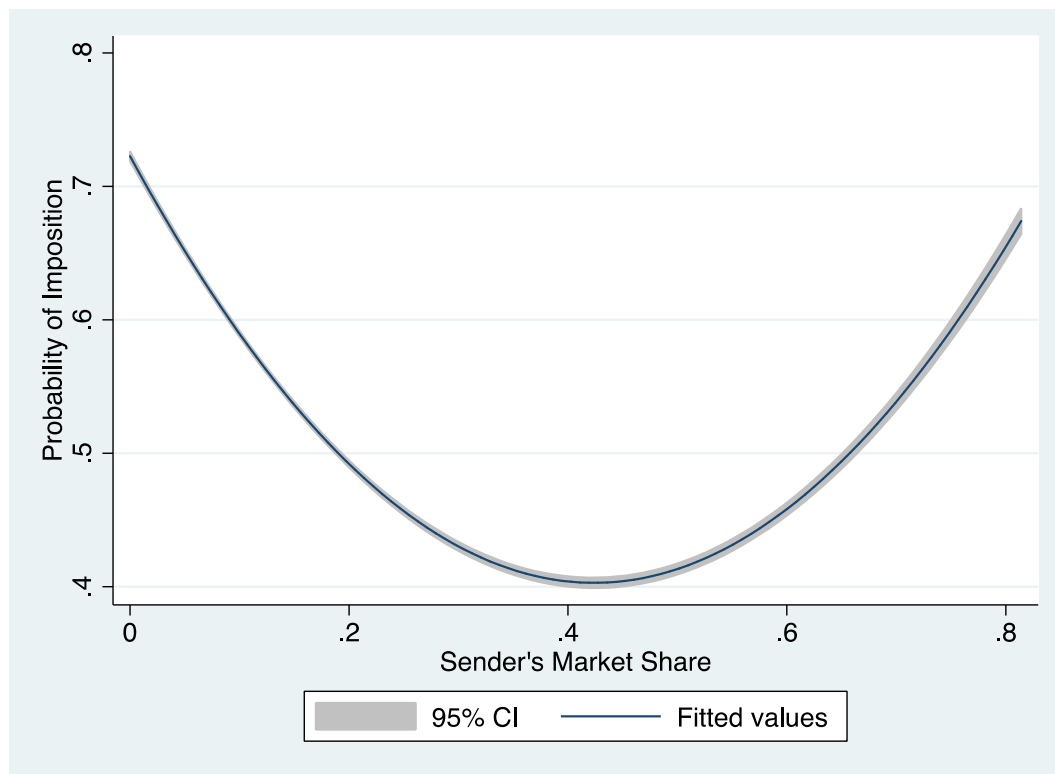
### **Predicting Sanctions Imposition**

Next, Figure 5.4 and Figure 5.5 show the predicted probabilities of sanctions imposition by each key independent variable. First, Figure 5.4 shows that the predicted probability of imposition is lowest just before sender's market share reaches its midpoint, whereas the predicted probability of success is highest in the moderate range. This distinguishes itself from a simple explanation of sanctions imposition that might suggest senders with much influence over the target are more likely to impose sanctions. More importantly, it reflects the strategic behavior of the target: targets acquiesce to sanctions when their exchanges with the sender's firms are likely to be terminated and stand firm when these exchanges are likely to continue. According to the bargaining framework, targets can anticipate if sanctions are likely to curtail the ability of the sender's firms to continue economic exchanges. If the sender has minimal market share, the target is more likely to resist since terminating transactions will not have much impact on its economy. Thus, we are more likely to observe sanctions. As the sender's share in the target's market increases, however, sanctions are more likely to harm the target. In turn, the target is more likely to acquiesce to the sanctions threat and the probability of imposition decreases. The probability of imposition minimizes when the sender's market share is at mid-point. However, once we exceed this point, the probability of imposition increases, mainly because targets do not believe the sender can credibly enforce sanctions.



Unlike the results for sanctions success, Figure 5.4 shows that the predicted probabilities of imposition are high on average, approximating 0.4 at its lowest and 0.7 at its highest. This indicates that senders impose sanctions quite frequently when it is politically costly not to, and only selectively enforce them when it is economically worthwhile. Such behavior is permitted since enforcement is difficult to monitor or observe from the outside, which offers much discretion to the sender government.

Figure 5.4: Predicted Probabilities of Imposition by Sender's Market Share

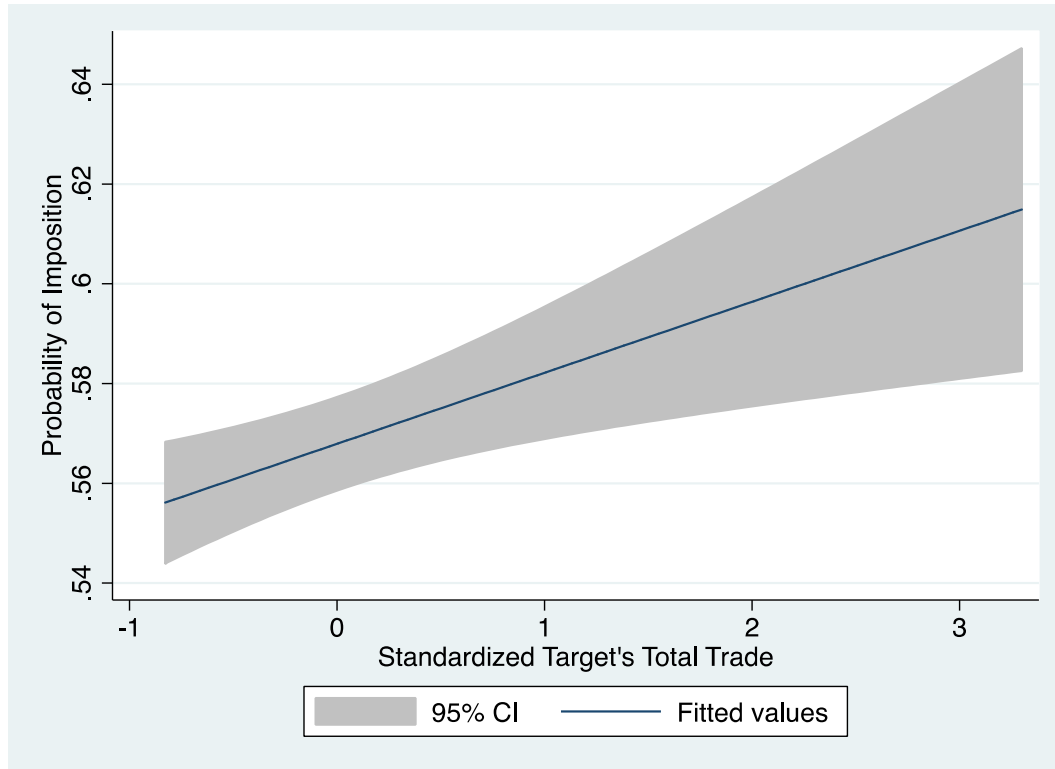


Second, Figure 5.5 shows that as the target's total trade increases, the predicted probability increases ever so slightly. Although the wide confident intervals suggest the evidence is not so strong, this begins to support the prediction that as the substitutability of sender-target transaction increases, senders are more likely to impose sanctions. That is, when sender-target exchanges are easy to

substitute, the sender's firm is less likely to comply with sanctions. Then, anticipating resistance, the target will be less likely to acquiesce to the sender's demands, and thus we will observe sanctions. Again, Figure 5.5 demonstrates that the overall predicted probability of sanctions imposition is higher than that of sanctions success. This supports the explanation that senders are more likely to impose sanctions for political reasons, but will only strongly enforce when its economic interests agree with the anticipated impact.

As for the control variables, the full model in Table 5.4 shows that senders have a higher tendency to impose sanctions against their military rivals. Also, senders are more likely to impose sanctions when less salient issues are involved. The former is largely because military contenders do not want to seem weak to their opponents, and the latter is due to the fact that less salient issues introduce lower audience costs among the public. Both results reinforce the findings from extant studies.

Figure 5.5: Predicted Probabilities of Imposition by Target's Total Trade



### An Alternative Test

In order to complement the results of the state level analyses and increase the validity of the study, I have constructed a complementary measure for the key variables that is based on the concept of market competition. Specifically, the variable *real competition*, denotes the actual level of competition that each sender, more precisely their firms, faces in the target's market in each sanctions case. The measure builds on the "export similarity score" of Finger and Kreinin (1979) and the "competitive distance" measure of Simmons and Elkins (2006). To account for the competitive relationship between two states, the authors originally calculated the degree of export similarity by disaggregating the value of their export profiles by sector. In essence, the more similar the export mix to a certain country, the more competitive the relationship would be between the two states. However, since the TIES database does not include information about which sectors were affected by sanctions, I calculate the similarity of export flows across all sectors. I am also unable to accommodate the value

of what is being exchanged. Instead, I improve the measure by calculating a competition score for the sender and subtracting from it the maximum competition score among all of the target's trade partners in a given sanctions year, generating a "real" competition score. Using trade data from Gleditsch (2002), I calculate the sender's competitiveness by dividing the flow of sender's exports to the target by the target's total trade flows. Then, I calculate the competitiveness of each trade partner of the target per sanctions case by dividing the state's exports to the target by the target's total trade. Next, I create the real competition score by subtracting the highest competitiveness score among the target's trade partners, namely maximum competition, from the sender's competitiveness score. If the value of real competition is lower than or equal to zero, it means the sender is facing a competitor with very similar or high export influence over the target, which makes competition relatively high. If the value of real competition is higher than zero, it means the sender is facing a competitor with weak export influence over the target, rendering competition low.

Then let us examine the predictions. When real competition is very high, the sender's firm will be tempted to evade sanctions at all costs. When real competition is very low, the sender's firm will readily comply with sanctions since there is little to lose. In these cases, the probability of sanctions enforcement will be low, making the probability of success low. When real competition is at moderate levels, however, the sender's firm will be more likely to attempt evasion but not so much that it will not be deterred by sufficient levels of enforcement. Thus, the probability of sanctions enforcement will be higher, increasing the probability of success. The bargaining framework demonstrated that senders are more likely to impose sanctions when enforcement is less likely. Likewise, sanctions will be more likely to be imposed when real competition is low or high, and less likely to be imposed when it is at mid-range. Since the predictions for sanctions success and imposition are curvilinear, I include a real competition square variable in the analysis.

Table 5.7: Summary Statistics

Key Variable	Observations	Mean	Standard Deviation	Min.	Max.
Real Competition	524	.01	.13	-.78	1.08
Maximum Competition	551	.08	.09	0	.8

### Main Findings from the Alternative Test

Table 5.8 presents the results from a Heckman probit selection model including the real competition variable. In short, it offers strong evidence that the level of competition a sender faces in the target's market influences the probability of sanctions success and imposition in the expected directions. The rho coefficient is not statistically significant for the Heckman model, so I also report the results from separate probit models.

In the full Heckman probit model, the coefficients for real competition and its square are in the expected directions and are statistically significant in the outcome equation. In agreement with hypothesis 2b, the real competition variable is positive while its square is negative in the outcome equation. This indicates that sanctions are more likely to succeed if the sender faces substantial competition in the target's market, but not so much that firms will evade sanctions at all costs and sanctions laws will become unenforceable. The real competition variable is not statistically significant in the selection equation, however the variable and its squared term are facing the expected direction. This offers partial support for the curvilinear relationship between sanctions success and imposition.

The positive and statistically significant coefficient for multilateral sanctions with institutional support confirms hypothesis 5. Meanwhile, the coefficient for the target's total trade, which represents substitutability, is facing the opposite direction in the outcome equation. When I run the model with the target's trade concentration variable instead, the coefficient is facing the predicted direction. This indicates that the results are quite unstable for this particular variable.

The coefficients for real competition and its square in the separate probit models for sanctions success and imposition are facing the expected direction. This supports hypothesis 2b. Also in

agreement with hypotheses 3b and 4b, the coefficient for substitutability is facing the expected direction in the success and imposition models, respectively. Again, the positive and statistically significant coefficient for multilateral sanctions with institutional support confirms hypothesis 5.

Table 5.8: Full Model and Separate Probit Models

	Full Model with Controls		Separate Probits	
Variable	Probit Model 6 with Selection: Outcome Equation	Probit Model 6 with Selection: Selection Equation	Probit Model 7: Success	Probit Model 8: Imposition
Real Competition	1.54* (.83)	-.87 (.68)	1.84* (.81)	-.86 (.56)
Real Competition Square	-2.31* (1.36)	4.05* (1.42)	-2.87 (2.4)	4.7* (2.25)
Substitutability (Target's Total Trade)	-0.2** (.07)	-.06 (.05)	0.27* (.12)	-.03 (.07)
Multilateral Sanctions with Institutional Support	.76*** (.21)	.19 (.13)	.64* (.25)	
Major Policy Goal	.43** (.14)		.65*** (.18)	
Expected Future Conflict	.81** (.31)	^	.77 (.72)	^
Balance of Capabilities	1.1* (.46)		.7 (.49)	
Target Regime	.01 (.02)	.04* (.02)	.01 (.02)	.04* (.02)
Low Salience Issue		.19 (.13)		.08 (.14)
Constant	-2.29*** (.44)	-0.22* (.13)	-1.93*** (.43)	-.16 (.13)
Rho	.92			
N selected	207			
N total	481		481	475
Pseudo R-square			0.15	0.02

Note: Robust standard errors in parentheses, clustered by target. \*p<.1, \*\*p<.5, \*\*\*p<.01.

^ Expected future conflict was omitted from the model as it predicted imposition perfectly.

## **Predicting Sanctions Success**

Figures 5.6 ~ 5.8 present the predicted probabilities of sanctions success by each key independent variable. First, Figure 5.6 shows that the predicted probability of success increases as real competition levels increase and after reaching its peak in the upper, mid-range, begins to decrease. Hence, there is support for the prediction that for senders who face very low or high competition in the target's market, sanctions are unlikely to be an effective tool as they successfully deter targets in the threat stage or are simply unenforceable (H2b). As the histogram of real competition shows, the data is densely distributed in the mid-range and is quite scarce in the lower and upper ranges. The wide confidence intervals in the lower and upper ranges of real competition reflect the distribution of the data.

Second, Figure 5.7 shows the impact of the target's total trade on sanctions success. As hypothesized, the predicted probability of sanctions success decreases as the target's total trade increases. This means that sanctions are less likely to succeed as the substitutability of sender-target transactions increases.

Third, Figure 5.8 demonstrates that the probability of sanctions success increases when imposed by multiple senders with institutional support. This suggests that sanctions are more likely to succeed when individual defecting behavior is deterred by the threat of collective punishment.

The control variables in Table 5.8 offer similar insights to the previous state level analyses. In agreement with extant literature, the coefficient for major policy goal is positive and statistically significant, which suggests that senders are more likely to strongly enforce sanctions when major policy goals are involved. Also, sanctions are shown to be more successful when the sender has more dominant military capabilities. Meanwhile, unlike previous findings, sanctions are shown to be more effective when the sender and target are military enemies.



Figure 5.6: Predicted Probabilities of Success by Real Competition

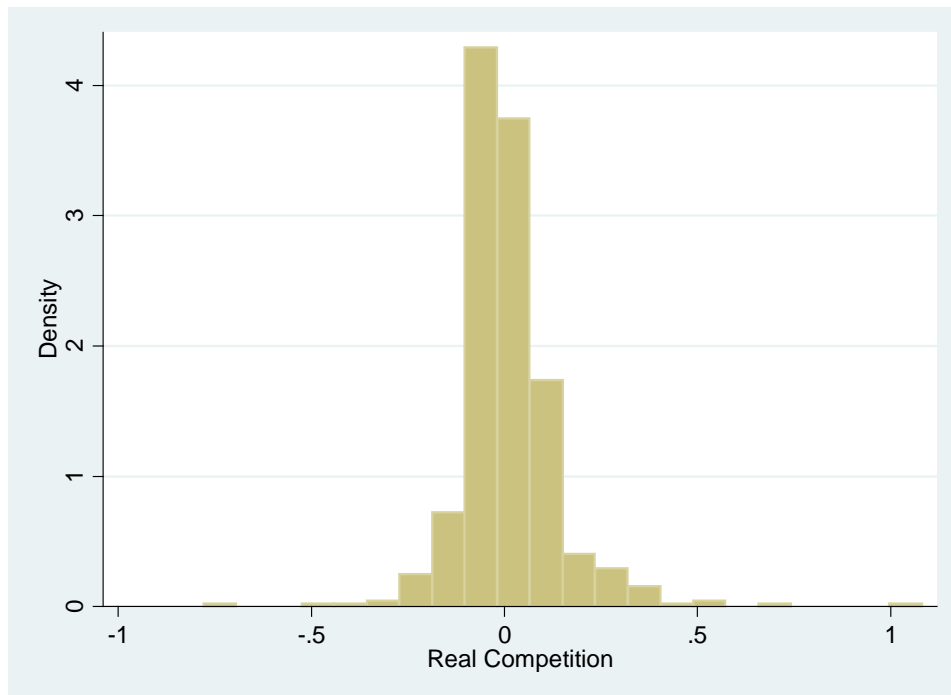
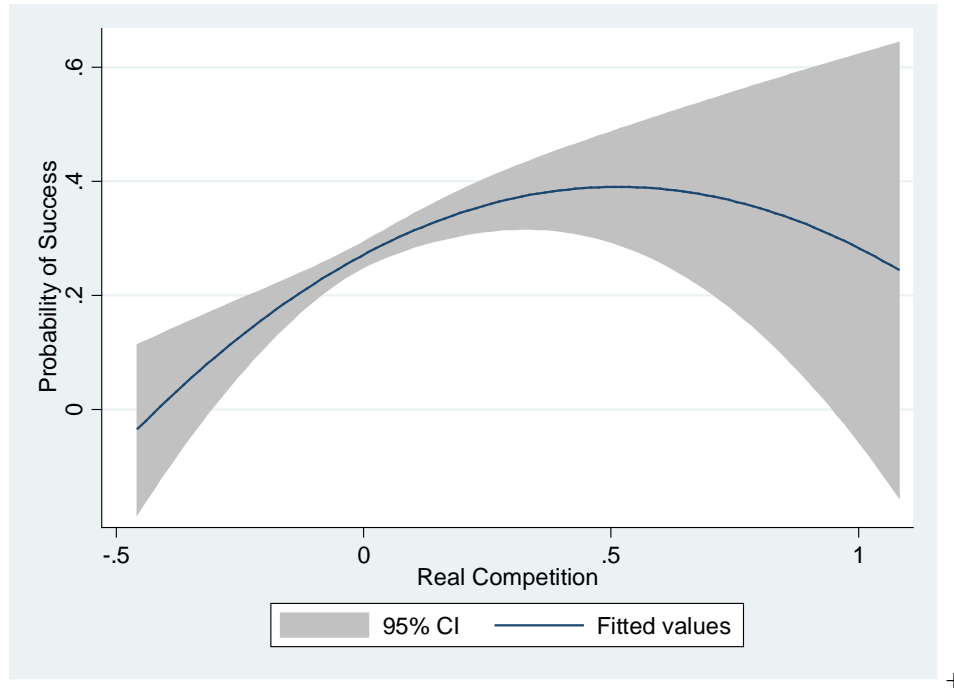


Figure 5.7: Predicted Probabilities of Success by Target's Total Trade

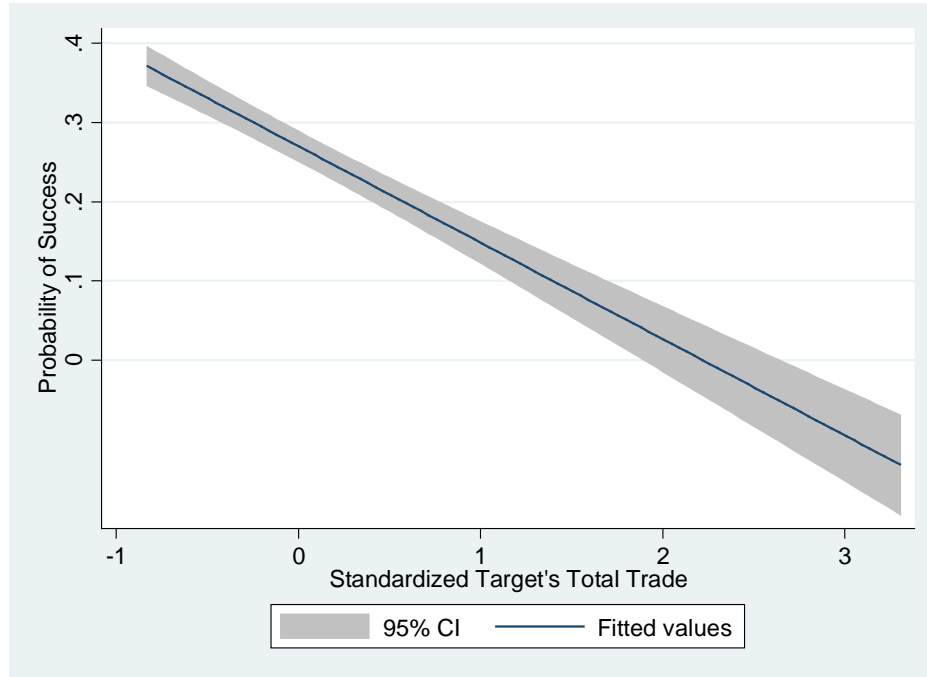
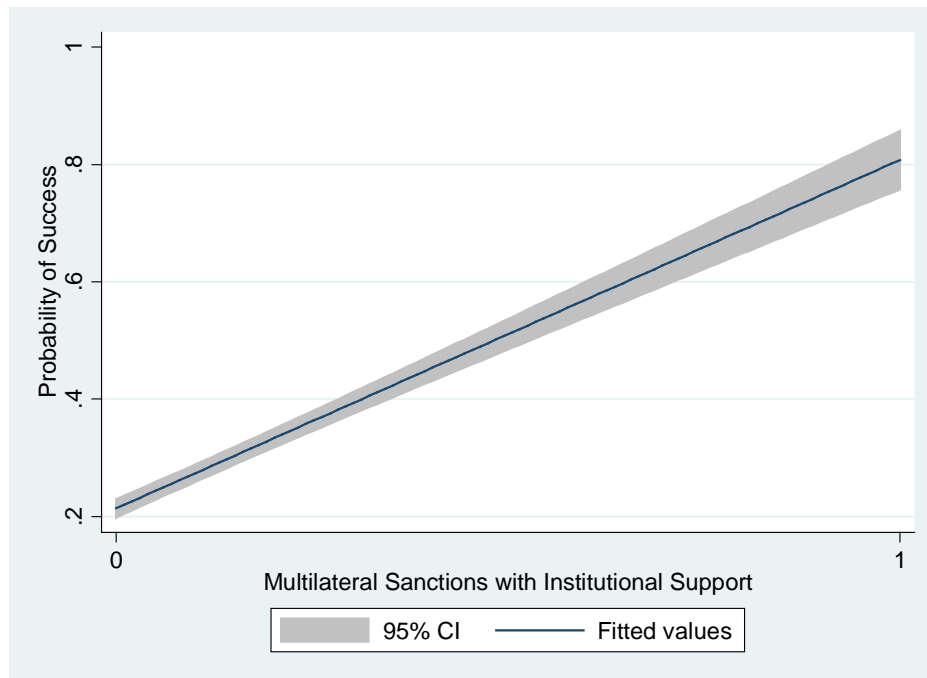


Figure 5.8: Predicted Probabilities of Success by Multilateral Sanctions with Institutional Support



### **Predicting Sanctions Imposition**

Figures 5.9 and 5.10 show the predicted probabilities of sanctions imposition by real competition and the target's total trade. The results are quite similar to the previous analyses. First, Figure 5.9 shows that the predicted probability of imposition is lowest when real competition is at its mid-point, and increases as the level of competition approaches low and high ranges. Recall that the probability of sanctions success was lowest when real competition was at low and high ranges, and continued to increase as competition levels approached mid range (Figure 5.6). This reaffirms the strategic behavior among the target, the sender and its firms. Also note that the predicted probabilities for imposition are on average higher than the predicted probabilities for success. Once again, this shows that senders are more likely to impose sanctions for political reasons but only enforce when it makes sense economically.

Second, Figure 5.10 shows that the predicted probability for sanctions imposition increases gradually as the target's total trade increases. While the wide confidence intervals reflect the sparse data in the upper range (See histogram in Figure 5.2), the upward slope indicates that as sender-target exchanges become easier to substitute, the sender's firm is more likely to evade sanctions. Observing this, the target will be more likely to resist the sender's demands and therefore, the more likely sanctions will be imposed and not merely threatened.

Figure 5.9: Predicted Probabilities of Imposition by Real Competition

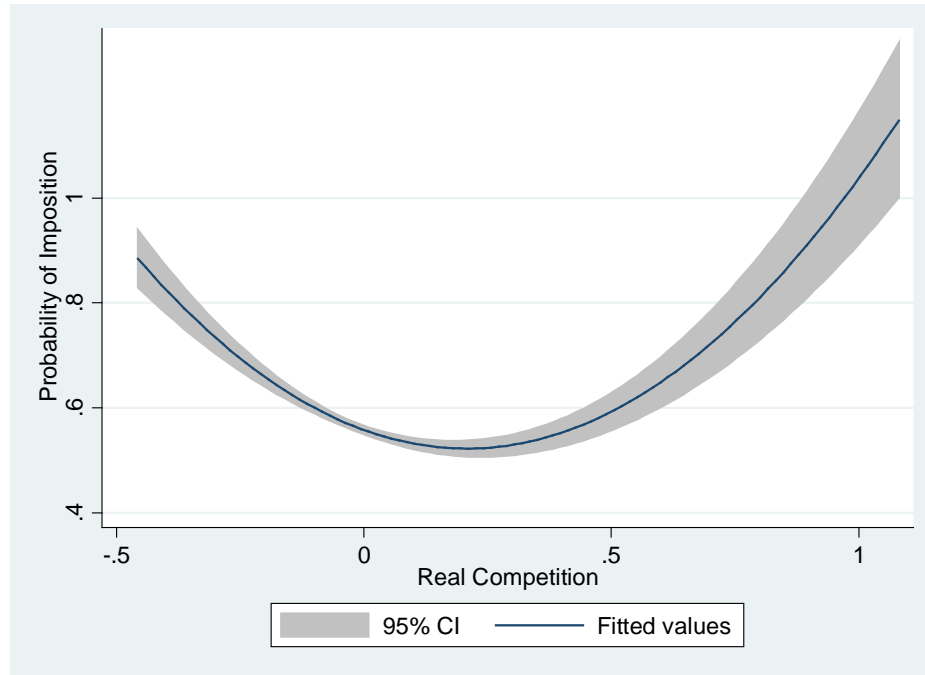
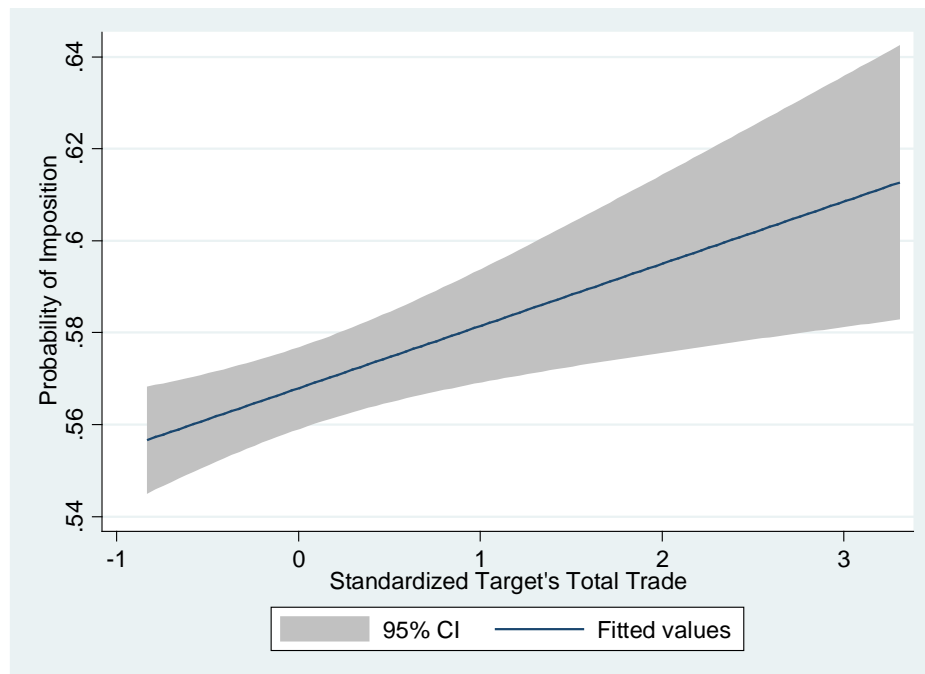


Figure 5.10: Predicted Probabilities of Imposition by Target's Total Trade



## Conclusion

This chapter examined the question of when sanctions are more likely to be successful, centering on the conditions of strong enforcement and sanctions imposition. The theoretical explanation is that since sender governments face a tradeoff between political and economic interests when their firms terminate their exchanges with a target, they will set the level of enforcement so that it maximizes their gains on both dimensions. That is, senders will only strongly enforce sanctions on their firms as long as the anticipated economic losses are enduring and there is a real chance that the target will change its objectionable behavior.

Overall, the statistical findings offer strong support for a theory that provides a new perspective on the notoriously low rate of sanctions success. First, if we combine the predictions on the sender's decision to impose and enforce sanctions in regards to the sender's market share, we see that sanctions are influenced by a mismatch between the conditions conducive to sanctions imposition and strong enforcement. That is, senders are more likely to impose sanctions when strong enforcement is unlikely and sanctions are more likely to fail, while senders are more likely to impose but only weakly enforce sanctions when sanctions should be effective. This begins to answer the question of why policy makers frequently impose sanctions when their success rate appears to be so low and inconsistent. Namely, since enforcement is difficult to observe and is thus rarely monitored closely, not all senders commit a sufficient amount of effort towards inducing real changes in the target's behavior. In fact, they may strategically decide to only weakly enforce: While a wide range of political reasons may motivate leaders to impose sanctions, sufficient levels of enforcement only follow when it makes sense for the sender to restrain its firms' behavior to maximize its interests on both political and economic fronts. We can therefore conclude that sanctions policies per se are not entirely responsible for their low success rates.

Second, in regards to the predictions on the sender's decision to impose and enforce sanctions by the substitutability of sender-target transactions, the results show that senders tend to strongly enforce when substitutability is low. This is important since targets respond strategically to the

sender's demands by anticipating the firms' response to sanctions. When substitutability is high, firms will be more willing to continue illicit transactions, making the target less likely to acquiesce. When substitutability is low, however, firms will be more likely to comply with sanctions than bear the inefficiency costs of evasion, which will lead the target to acquiesce. This means that senders will allocate sufficient resources towards enforcement only when there is a chance that sanctions will work, which underlines the "economics" in implementing economic sanctions policy.

Third, there is strong evidence that multilateral sanctions supported by an international institution increase the chance of sanctions success. The members of a sanctions coalition face individual enforcement problems that further complicate how they jointly implement sanctions on a target. Due to incentives to defect, senders need some guarantee that fulfilling their obligation to strongly enforce sanctions is economically worthwhile and will meaningfully contribute to coercing the target. Institutional support for multilateral sanctions is useful in this respect as it allows members to agree upon rules to coordinate enforcement, share vital information about their monitoring activities and effectively pool resources that will reduce the individual costs of prosecution. As well as create positive incentives to strong enforce, institutions can penalize the senders who only weakly enforce and create negative incentives that make defection less favorable. This begins to expand the unilateral theory to a multilateral context, which is much needed with the increase of multilateral sanctions in the recent two decades.

These results for sanctions success and imposition were confirmed by the alternative test, which incorporates the actual level of competition in the target's market as the key independent variable. When the sender faces very low or high levels of competition in the target's market, they are more likely to impose sanctions but less likely to strongly enforce them. As competition reaches moderate levels, however, senders are more likely to strongly enforce while they are less likely to impose sanctions.

In all, the quantitative analyses find substantive support for the argument that firms play an intermediary role in determining sanctions success. This draws attention to how sanctions costs are

realized for the sender as well as the target, which thus far has been treated as exogenous in extant works. This also provides a foundation for the study of sanctions at the firm level, which can be improved with better data and measures.

## Chapter 6. Conclusion

In our world today, economic sanctions are a highly sought after policy instrument on issues ranging from suspending nuclear weapons development programs in Iran and North Korea to managing the mass killings and civil disruption in Syria. However, in contrast to the immediate attention drawn towards imposing sanctions on perpetrators of domestic and international violence, little has been said about the willingness of state governments to enforce the sanctions laws they have approved and passed on private actors such as firms. Many scholars and policy makers have agreed that sanctions are not so effective, often without even offering a clear definition of what sanctions success is. Even among those who have specified sanctions success as coercing a target to change its behavior, it has often been assumed that when sanctions are imposed they are automatically set to work so that when sanctions fail to induce change in behavior, the policy instrument is largely at fault. Yet, without fully recognizing the role of firms that are the main economic agents responsible for executing the sanctions policies and how sanctioning governments strategically interact with these actors with a goal to maximize national interests, our understanding of sanctions effectiveness is far from incomplete.

This study adopts a rationalist approach to implementing sanctions that is consistent with the assumptions and recent theories reviewed in Chapter 2. As in previous analyses employing bargaining theory, it views the use of sanctions as the strategic choice of a sender that has a political goal and believes economic coercion can be effective in changing a target's behavior. Specifically, I argue that



a sender's decision to impose and enforce sanctions needs to be examined as distinct phases in a bargaining framework.

The objective of the study was to determine how the strategic interactions between a sender and its firms, as well as the sender's strategic relationship with the target, influence the effectiveness of sanctions. Existing studies have contended that increasing the target's costs or reducing the sender's costs in linear fashion would improve the chances of sanctions success. I argue that the relationship between actor costs and sanctions outcomes is not so simple when we consider the dual incentives of the sanctioning government that looks out for its firms. A small number of scholars have begun to directly incorporate firm transactions into their theories, focusing on what motivates firms in third countries to evade sanctions and when states are more likely to cooperate to evade sanctions. However the impact of the sender's firms on the implementation of sanctions laws has thus far been understudied.

Central to the argument is the problem of sanctions enforcement, articulated in Chapter 3. Unlike the average firm that seeks to maximize economic profits, sender governments have broader concerns about the political benefits that follow successful coercion of the target as well as maintaining the profitability and competitiveness of its firms that they depend on for economic growth and development. If senders strongly enforce sanctions on their firms and their business transactions are minimized, the damage inflicted on future transactions with the target may be so severe that the sender may be better off moderating the level of enforcement and protecting its economic interests. Various scenarios are possible. In some cases, senders may not face such a dilemma as firms voluntarily comply with sanctions laws. In other cases, senders may be able to induce firms to comply with sanctions by increasing the level of enforcement. At times, senders may find sanctions unenforceable since the sender's firms will opt to evade sanctions at all costs. According to this logic, the extent to which the sender's firms will be negatively affected by sanctions is critical to how strongly a sender government will enforce these laws.

The first step to complete this discussion is to identify when firms are more likely to attempt sanctions evasion. Rather than explore the different characteristics of firm structures or industries that are more likely to be affected by sanctions, I develop a general bargaining framework that assumes firms are profit-seeking and are affected by fears of losing out in market competition should they comply with sanctions. Since evading sanctions involves a risk of being detected and punished by state officials, as well as high transaction costs associated with continuing illicit exchanges, what follows is the expectation that firms with little to lose economically would choose to comply with sanctions rather than bear the inefficiency costs to evade them. In contrast, those firms that have too much to lose would attempt to evade sanctions regardless of how costly the risks may be. This brings us back to the question of sanctions enforcement. I identify two key factors, sender firm's share in the target and the substitutability of sender-target transactions, which influence a firm's likelihood of sanctions evasion. This in turn, influences the probability that senders strongly enforce sanctions, which ultimately impacts sanctions effectiveness. Moreover, although sanctions success follows logically from strong enforcement in the bargaining framework, it is necessary to probe a little further and relax the assumption that sanctions are implemented unilaterally. Bridging on insights from neoliberal theories of cooperation, I argue that when sanctions are imposed multilaterally, the involvement of international institutions is important to deter senders from defecting from the collective effort and to keep them from undermining the impact of the economic instrument.

In this manuscript, I have addressed three main questions to develop a coherent explanation for sanctions success. First, are the sender's firms deterred from evading sanctions when the sender government strongly enforces sanctions? Second, under what conditions are senders more likely to strongly enforce sanctions? Does strong enforcement lead to sanctions success? Third, do senders really strongly enforce sanctions under the conditions specified in the theory?

To answer these questions, Chapter 4 examined the case of U.S. export restrictions on satellites and high-technology transfers to China to illustrate that major U.S. firms stopped evading sanctions after enforcement levels were strengthened. It also compared the different responses of the

U.S. government in regards to its satellite manufacturing firms in China and Russia, and also the government's different treatment of its satellite manufacturing firms and automobile manufacturing firms, both operating within China. Chapter 5 conducted statistical analyses on whether senders are more likely to strongly enforce sanctions when their firm's market share is moderate in the target and when their firm transactions are difficult to substitute, and under what conditions senders are more likely to impose sanctions. It also examined whether or not strong enforcement would lead to sanctions success should sanctions be imposed by multiple senders with institutional support.

The case illustration and large-N empirical test both provide ample support for the theory. Chapter 4 presents evidence that the theory proposed is indeed plausible. First, focusing on the conditions before and after the U.S. government undertook federal investigations against major satellite manufacturing firms and penalized them for evading sanctions, Part 1 finds that firms do respond positively to strong enforcement measures. Also, it clearly demonstrates that when firm shares are high and enforcement levels weak, firms have strong incentives to attempt sanctions evasion. Comparing the share of U.S. satellite manufacturing firms and U.S. auto manufacturing firms in the Chinese market, Part 2 finds support for the argument that senders are more likely to strongly enforce sanctions when their shares are moderate and when it is difficult for targets to substitute its transactions with the sender's firms.

Chapter 5 presents two sets of analyses that strongly support the argument that senders are more likely to weakly enforce sanctions when their firms' shares are low, but increase enforcement levels as shares reach moderate levels. The proposition that senders would strongly enforce sanctions when the substitutability of sender-target transactions is low and weaken enforcement levels as substitutability increases saw promising results. The analyses also confirmed that senders are more likely to impose sanctions when their share in the target's market is low. Taken together with the results for sanctions success, we can infer that senders are more likely to impose sanctions when enforcement is less likely, which offers an explanation for why sanctions seem to fail so often. The objective of the alternative test that assessed the level of competition in the target's market was to

buttress the causal linkage that firms strategically interact with their governments. Although this is not a perfect test, the positive results have brought us a step closer to determine the strategic relationship at the firm level.

To ensure that the theory holds, the analyses made a point of focusing on the strategic relationship between a sender, its firms and the target. This was a first cut, and there are various ways to deepen and expand the theory as well as improve upon the empirical tests. On the theoretical side, a closer examination of targets, their relationship with their firms and foreign firms is an important facet to the question of sanctions effectiveness. The case illustration has focused on, but is not limited to, sanctions imposed in a unilateral context that provides an environment that can capture the essence of the sender's enforcement dilemma. The analysis began to incorporate a discussion of institutional mechanisms as a driver of sanctions success. However, observing ongoing sanctions efforts against Iran and North Korea points to the role of non-sanctioning third party states as well as weakly committed senders such as China and Russia in weakening the impact of multilateral sanctions. This, too, calls for a deeper theoretical examination of the causal mechanisms that lead multilateral sanctions to higher rates of success than unilateral sanctions, an issue that has been much debated in the extant literature.

Future research should also concentrate on constructing a more nuanced measure for the sender firm's market influence and substitutability of transactions at the firm level. The trade flow measurements used in this study are rather blunt, however they are the sharpest available that are appropriate for cross-national analyses. The sanctions sample of sanctions extracted from the Threat and Imposition of Economic Sanctions (TIES) database was an improvement of existing data that are affected by selection bias by not including information about sanctions threats. The thirty-year time period was arguably short, hence further analysis should follow using the expanded version of the current database. Better measures are also needed for multilateral cooperation among senders, which urges the researcher to revisit the notable studies of the early 1990s with an appetite for incorporating the strategic interactions between state and private actors explicitly. Indeed, improvements on both

theoretical and empirical fronts will be needed to continue making genuine advancements in the understanding of sanctions effectiveness.

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